AV RECEIVER

RX-V800/RX-V800RDS/HTR-5280

SERVICE MANUAL

IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel.
It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

RX-V800/RX-V800RDS/HTR-5280

■ CONTENTS

TO SERVICE PERSONNEL 1
IMPEDANCE SELECTOR 1
SPECIFICATIONS 2
REMOTE CONTROL TRANSMITTER 3
FRONT PANELS 4
REAR PANELS ..... 5~6
INTERNAL VIEW 7
DISASSEMBLY PROCEDURES 8
SELF DIAGNOSIS FUNCTION (DIAG) ..... 9~23
AMP ADJUSTMENT 23
DISPLAY DATA 24
IC DATA ..... 25~31
BLOCK DIAGRAM ..... 32~35
PRINTED CIRCUIT BOARD ..... 36~59
PIN CONNECTION DIAGRAM ..... 60~61
SCHEMATIC DIAGRAM ..... 62~68
PARTS LIST ..... 69~87
REMOTE CONTROL TRANSMITTER ..... 88~89

このサービスマニュアルは、エコマーク認定の再生紙を使用しています。
This Service Manual uses recycled paper.

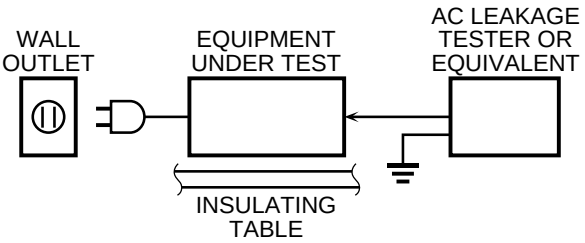
100727

YAMAHA
YAMAHA CORPORATION
P.O.Box 1, Hamamatsu, Japan

■ TO SERVICE PERSONNEL

1. Critical Components Information
   Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Models Only)
   When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by 0.15µF.
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.



WARNING: CHEMICAL CONTENT NOTICE!

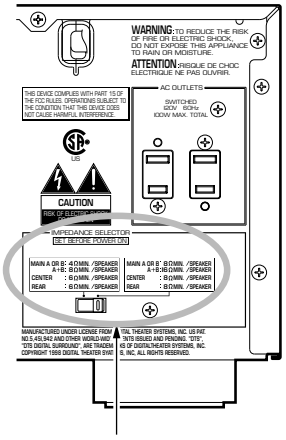
The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and /or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ IMPEDANCE SELECTOR


WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
ATTENTION: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR.
AC OUTLETS
CAUTION
IMPEDANCE SELECTOR
SET BEFORE POWER ON

IMPEDANCE SELECTOR

WARNING:
Do not change the IMPEDANCE SELECTOR switch setting while the power to this unit is on, otherwise this unit may be damaged.

■ SPECIFICATIONS

■ Audio Section

Minimum RMS Output Power (Power Amp. Section)
(20 Hz to 20 kHz, 0.04% THD, 8 ohms)
MAIN ..... 100W + 100W
CENTER 100W
REAR ..... 100W + 100W

Maximum Power (EIAJ)
(1 kHz, 10% THD, 8 ohms)
MAIN ..... 140W + 140W
CENTER 140W
REAR ..... 140W + 140W

Dynamic Power Per Channel (IHF)
MAIN L/R (8/6/4/2 ohms)
[U model] ..... 135/170/205/245 W
[C, A, B, G, L, R, T models] ..... 125/160/195/230 W

DIN Standard Output Power Per Channel
(1 kHz, 0.7% THD, 4 ohms)
[G model] ..... 140 W

Dynamic Headroom
8 ohms
[U model] ..... 1.3 dB
[C model] ..... 1.0 dB

IEC Power
MAIN L/R (1 kHz, 0.04% THD, 8 ohms)
[G model] ..... 105W + 105W

Damping Factor
MAIN L/R (20 Hz to 20 kHz, 8 ohms) ..... 80 or more

Input Sensitivity / Input Impedance
PHONO MM ..... 2.5 mV / 47 k-ohms
CD, etc. ..... 150 mV / 47 k-ohms

Maximum Input Signal Level
PHONO MM (1 kHz, 0.1% THD) ..... 100 mV
CD, etc. (1 kHz, 0.5% THD, Effect On) ..... 2.2 V

Output Level / Output Impedance
REC OUT ..... 150 mV / 0.9 k-ohms
PRE OUT ..... 2.57 V / 1.2 k-ohms
SUB WOOFER [MAIN SP: Small] ..... 4 V/1.2 k-ohms

Headphone Jack Rated Output / Impedance
1 kHz, 40 mV, 8 ohms ..... 0.15 V / 100 ohms

Frequency Response
Power Amp only (5 Hz to 100 kHz) ..... 0/-3 dB
CD, etc. to MAIN SP OUT (10 Hz to 100 kHz) ..... 0/-3 dB

RIAA Equalization Deviation
PHONO MM (20 Hz to 20 kHz) ..... 0 ± 0.5 dB

Total Harmonic Distortion
(20 Hz to 20 kHz)
PHONO MM, to REC OUT (1V) ..... 0.02% or less
CD, etc. to MAIN SP OUT (50 W / 8 ohms) ..... 0.04% or less

Signal to Noise Ratio (IHF-A network)
CD, etc. to MAIN SP OUT (Input shorted, Effect Off)
150 mV ..... 96 dB or more
200 mV ..... 98 dB or more

Residual Noise (IHF-A netwok)
MAIN L/R SP OUT ..... 150 µV or less

Channnel Separation
(Vol -30 dB, Effect Off)
PHONO (Input Shorted, 1 kHz) ..... 60 dB or more
PHONO (Input Shorted, 10 kHz) ..... 55 dB or more
CD, etc. (Input 5.1 k-ohms terminated, 1 kHz) ..... 60 dB or more
CD, etc. (Input 5.1 k-ohms terminated, 10 kHz) ..... 45 dB or more

Tone Control Characteristics
Bass: Boost/Cut ..... ±10 dB (50 Hz)
Turnover Frequency ..... 350 Hz
Treble: Boost/Cut ..... ±10 dB (20 kHz)
Turnover Frequency ..... 3.5 kHz

Filter Characteristics
MAIN, Rear SP Small (H.P.F.) ..... 90 Hz, 12 dB/oct.
SUBWOOFER (L.P.F.) ..... 90 Hz, 18 dB/oct.

Bass Extension
60 Hz ..... 6 dB

■ Video Section

Video Signal Type
[U, C, R, T models] ..... NTSC
[A, B, G, L, models] ..... PAL

Video Sigal Level
..... 1 Vp-p / 75 ohms

S-Video Sigal Level
Y ..... 1 Vp-p / 75 ohms
C ..... 0.286 Vp-p / 75 ohms

Component Video Sigal Level
Y ..... 1 Vp-p / 75 ohms
Cb / Cr ..... 0.7 Vp-p / 75 ohms

Maximum Input Level
..... 1.5 Vp-p

Sigal to Noise Ratio
..... 50 dB or more

Monitor Out Frequency Response
S-Video Signal Level ..... 5 Hz to 10 MHz, -3 dB
Component Signal Level ..... DC to 30 MHz, -3 dB

■ FM Section

Tuning Range
[U, C models] ..... 87.5 to 107.9 MHz
[R, T, A, B, G, L models] ..... 87.5 to 108.0 MHz

50 dB Quieting Sensitivity (IHF)
(100% Mod)
Mono ..... 2.0 µV (17.3 dBf)
Stereo ..... 25 µV (39.2 dBf)

Usable Sensitivity (IHF)
Mono ..... 1.0 µV (11.2 dBf)

Selectivity
at 400 kHz ..... 70 dB

Signal to Noise Ratio (IHF)
Mono / Stereo ..... 76 dB / 70 dB

Harmonic Distortion
(1 kHz)
Mono/Stereo ..... 0.2 / 0.3 %

Stereo Separation
1 kHz ..... 45 dB

Frequency Response
20 Hz to 15 kHz ..... +0.5 / -2 dB

Antenna Input
..... 75 ohms unbalanced

■ AM Section

Tuning Range
[U, C, R, T models] ..... 530 to 1,710 kHz
[A, B, G, L models] ..... 531 to 1,611 kHz

Usable Sensitivity
..... 300 µV/m

Antenna
..... Loop Antenna

■ General

Power Supply
[U, C models] ..... AC 120 V, 60 Hz
[R models] ..... AC 110/120/220/240 V, 50/60 Hz
[T model] ..... AC 220 V, 50 Hz
[A model] ..... AC 240 V, 50 Hz
[B, G, L models] ..... AC 230 V, 50 Hz

Power Consumption
[U model] ..... 260 W
[C model] ..... 300 W / 360 VA
[R, T, A, B, G, L models] ..... 300 W

Maximum Power Consumption
(5ch Drive, 10% THD)
[R model] ..... 585 W

AC Outlets
2 switched outlets
[U, C, R, T G, L models] ..... 100W max., total
1 switched outlets
[A, B models] ..... 100W max.

Dimensions (W x H x D)
..... 435 x 171 x 431.5 mm (17-1/8" x 6-3/4" x 17")

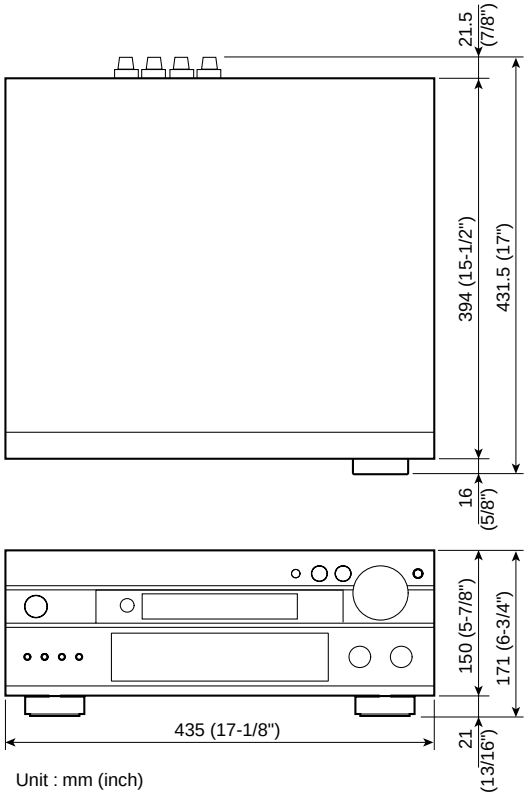
Weight
..... 15.0 kg (33 lbs. 1 oz.)

Accessories
Remote control transmitter, Manganese batteries, Indoor FM antenna, AM loop antenna

*** Specifications are subject to change without notice.**

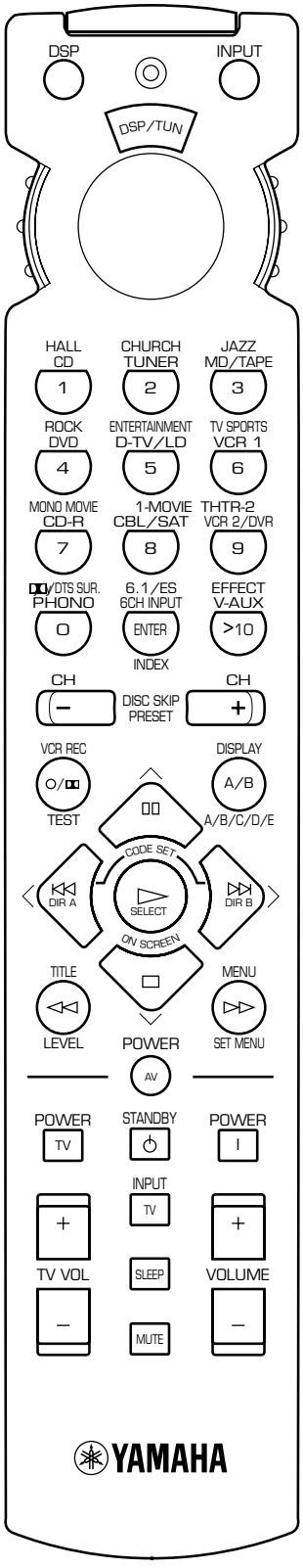
U ..... U.S.A. model
A ..... Australian model
G ..... European model
R ..... General model
C ..... Canadian model
B ..... British model
L ..... Singapore model
T ..... China model

• **DIMENSIONS**



Unit : mm (inch)

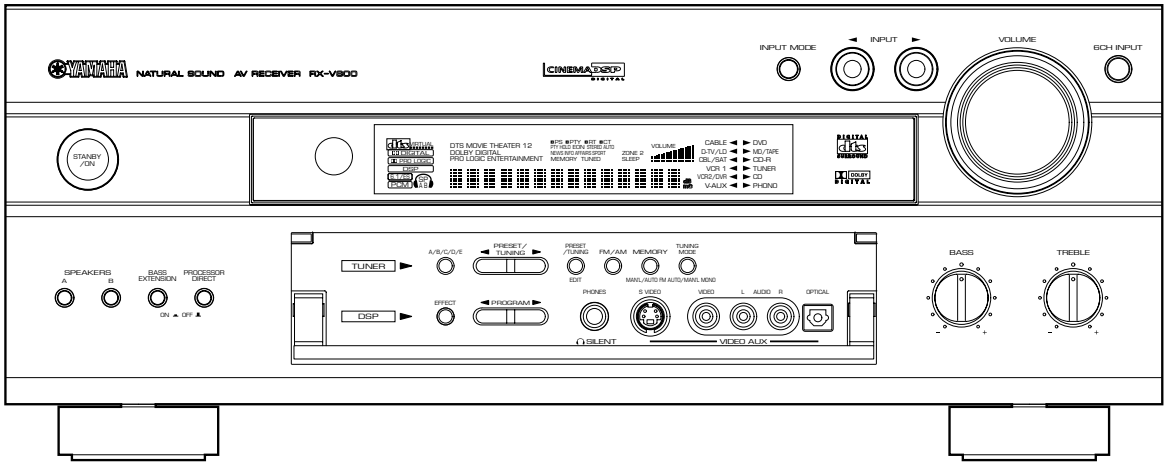
■ REMOTE CONTROL TRANSMITTER



■ FRONT PANELS

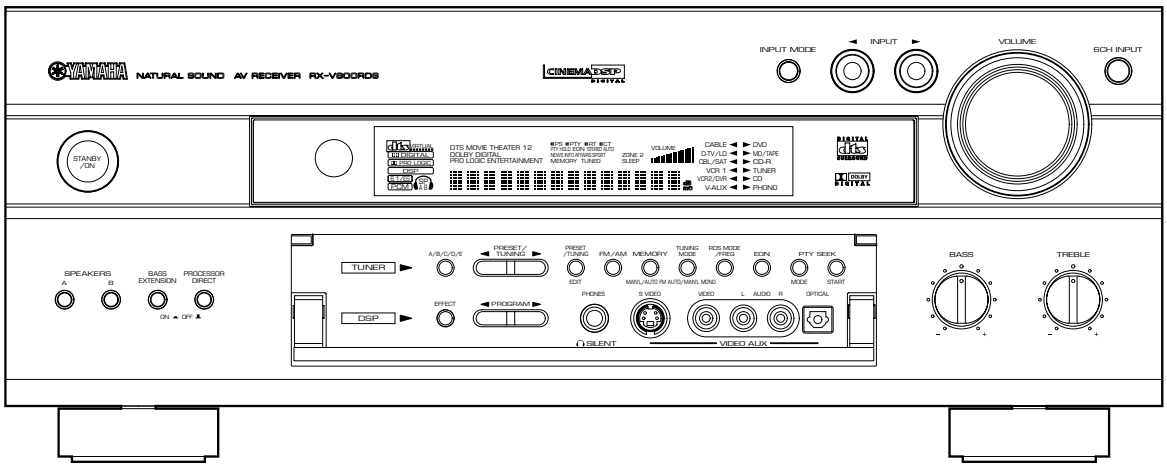
RX-V800 (U, C, A, L, R, T models)

- **U, C and A models → BL (Black model)**
- **L model → GD (Gold model)**
- **R and T models → BL (Black model) and GD (Gold model)**



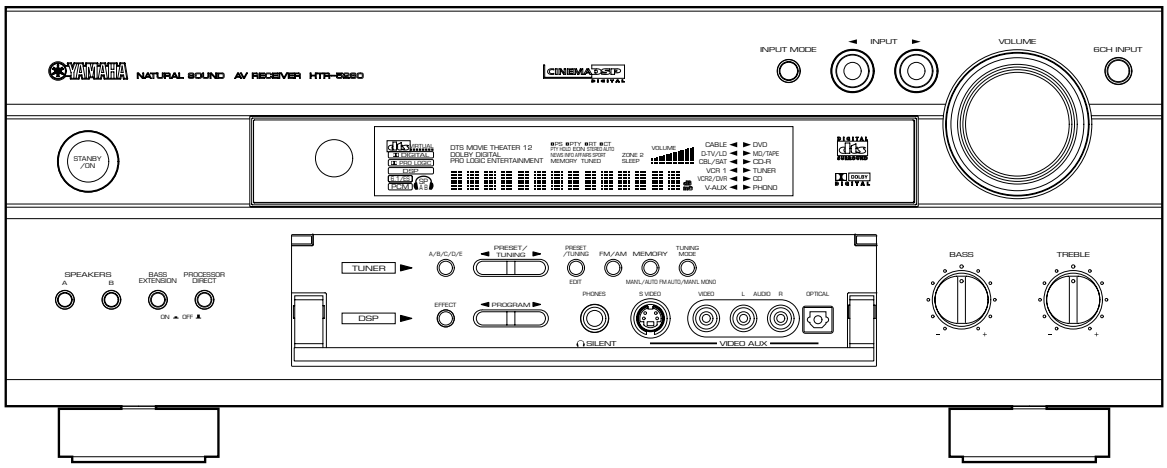
RX-V800RDS (B, G models)

- **B model → BL (Black model)**
- **G model → BL (Black model), GD (Gold model) and TI (Titan model)**



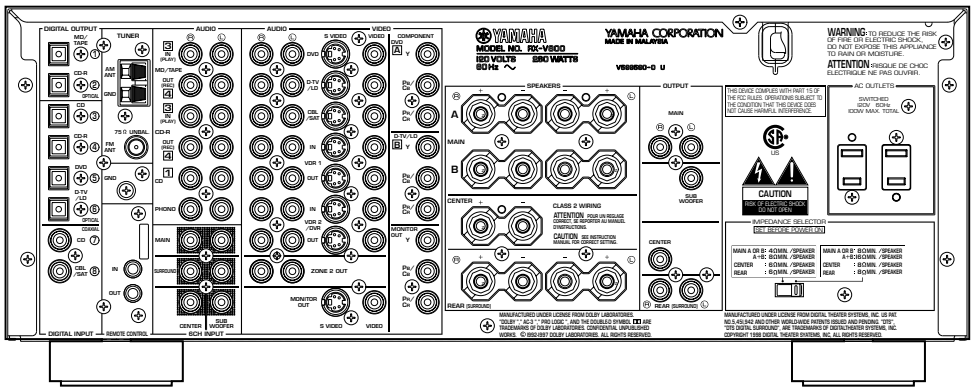
HTR-5280 (U, C, A, T models)

- **U, C and A models → BL (Black model)**
- **T model → GD (Gold model)**

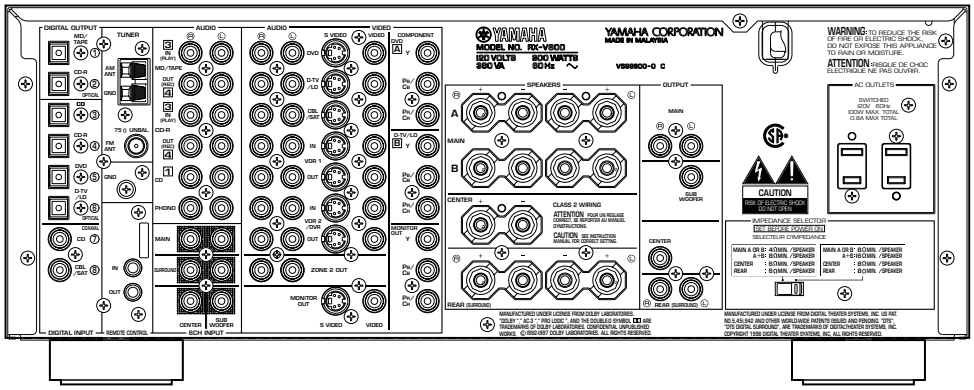


■ REAR PANELS

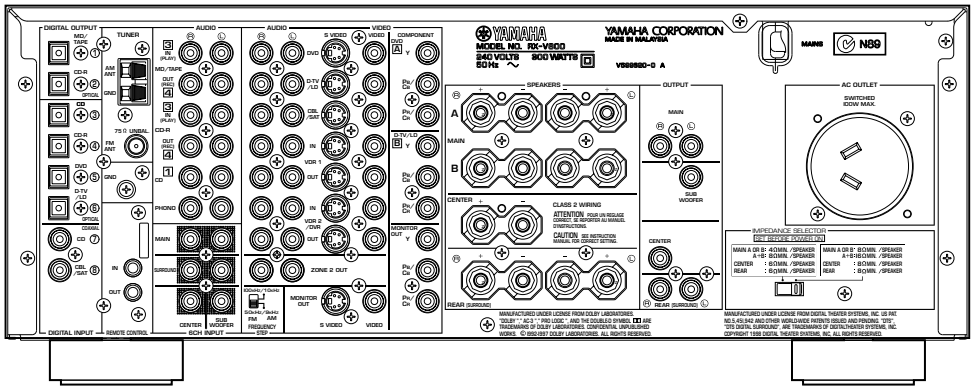
U model



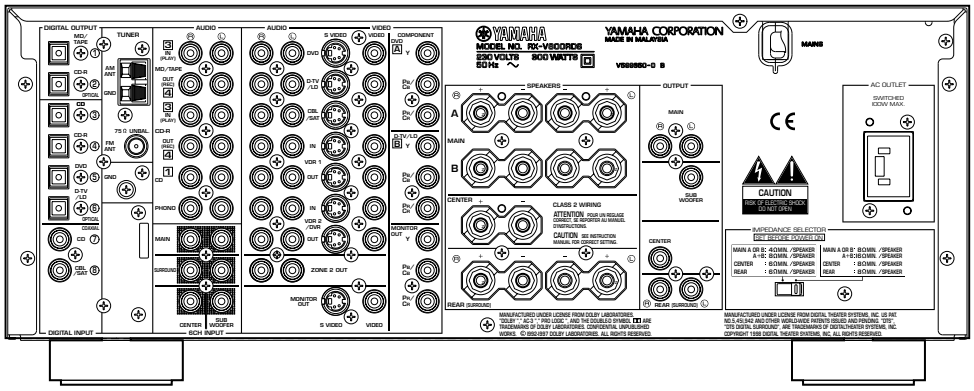
C model



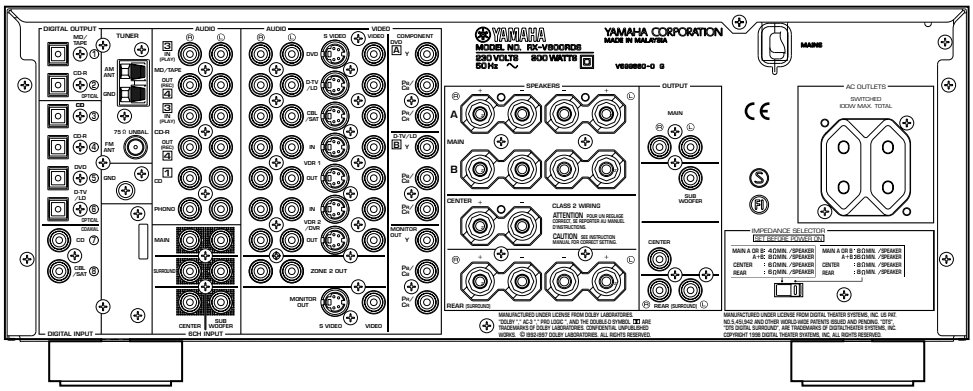
A model



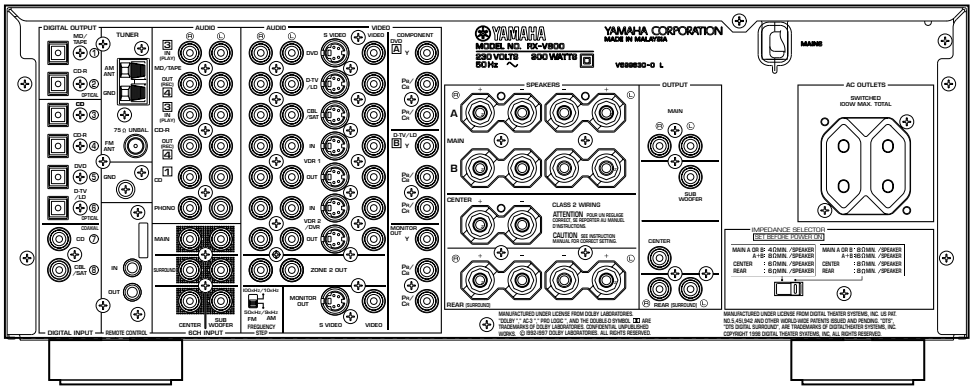
B model



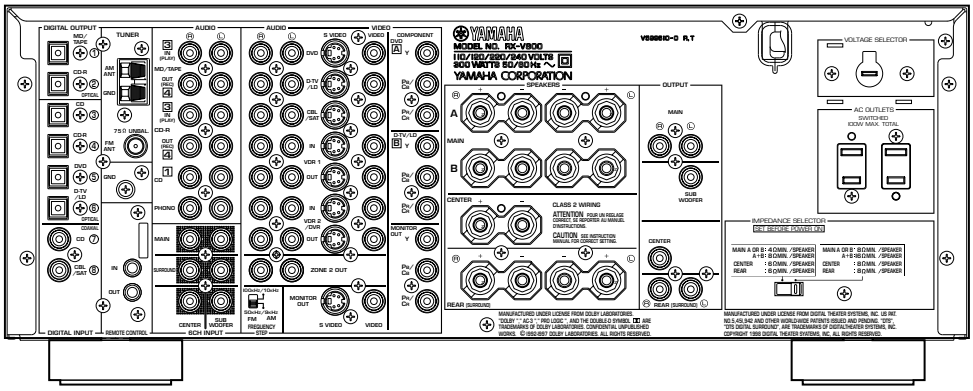
G model



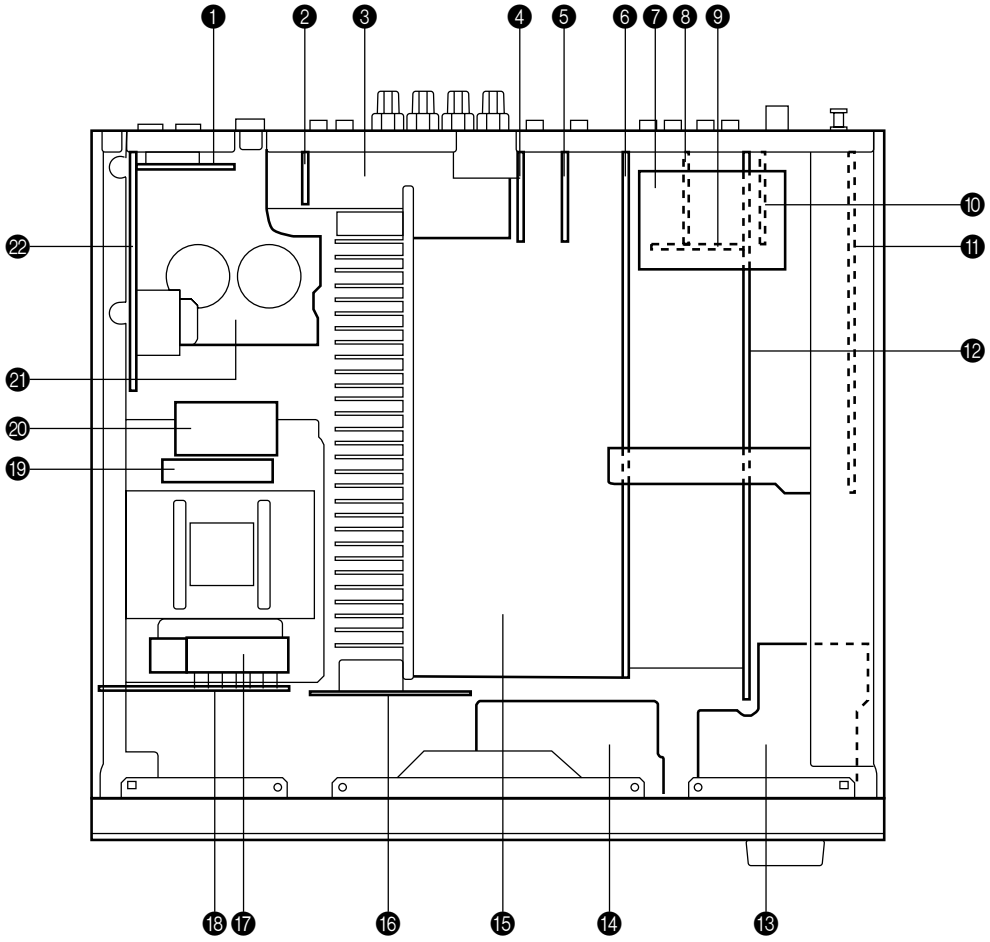
L model



R, T model



■ INTERNAL VIEW



1 POWER (3) P.C.B.
2 MAIN (5) P.C.B.
3 MAIN (2) P.C.B.
4 VIDEO (3) P.C.B.
5 VIDEO (2) P.C.B.
6 VIDEO (1) P.C.B.
7 POWER (7) P.C.B.
8 POWER (8) P.C.B.
9 POWER (9) P.C.B.
10 POWER (10) P.C.B.
11 DSP P.C.B.
12 FUNCTION P.C.B.
13 OPERATION (5) P.C.B.
14 OPERATION (4) P.C.B.
15 MAIN (1) P.C.B.
16 POWER (6) P.C.B.
17 POWER (5) P.C.B.
18 POWER (4) P.C.B.
19 POWER (2) P.C.B.
20 MAIN (4) P.C.B.
21 MAIN (3) P.C.B.
22 POWER (1) P.C.B.

■ DISASSEMBLY PROCEDURES

(Remove parts in the order as numbered.)
Disconnect the power cord from the AC outlet.

1. Removal of Top Cover

a. Remove 2 screws (①), 4 screws (②) and 5 screws (③) in Fig. 1.
b. Slide the Top Cover rearward to remove it.

2. Removal of Front Panel

Remove 9 screws (④) in Fig. 1, and the Front Panel can be removed forward.

3. Removal of MAIN PCB (1)

a. Remove the Top Cover.
b. Remove 2 screws (⑤) in Fig. 3 AND remove the support metal plate.
c. Disconnect 3 connectors (CB232, CB601, CB602 in Fig.2) from the VIDEO PCB (1), and disconnect the connector (CB3) from the MAIN PCB (1) in Fig. 2.
d. Remove 8 screws (⑥) in Fig. 3, and the VIDEO PCB (1) and VIDEO PCB (3) can be removed.
e. Disconnect the connector (CB353) from the POWER PCB (6) in Fig. 2.
f. Remove the plastic rivet ⑦, and the POWER PCB (6) can be removed upward from the heat sink.
g. Disconnect the connector (CB1 in Fig. 2) from the MAIN PCB (1) .
h. Remove 2 screws (⑧) in Fig. 2, and the support Transistor can be removed.
i. Remove 6 screws (⑨) in Fig. 2.
j. Remove 6 screws (⑩) in Fig. 3.
k. Pull out the MAIN PCB (1) forward as shown in Fig. 3. At this time, disconnect the flexible flat cable connected to the MAIN PCB (1) if necessary.

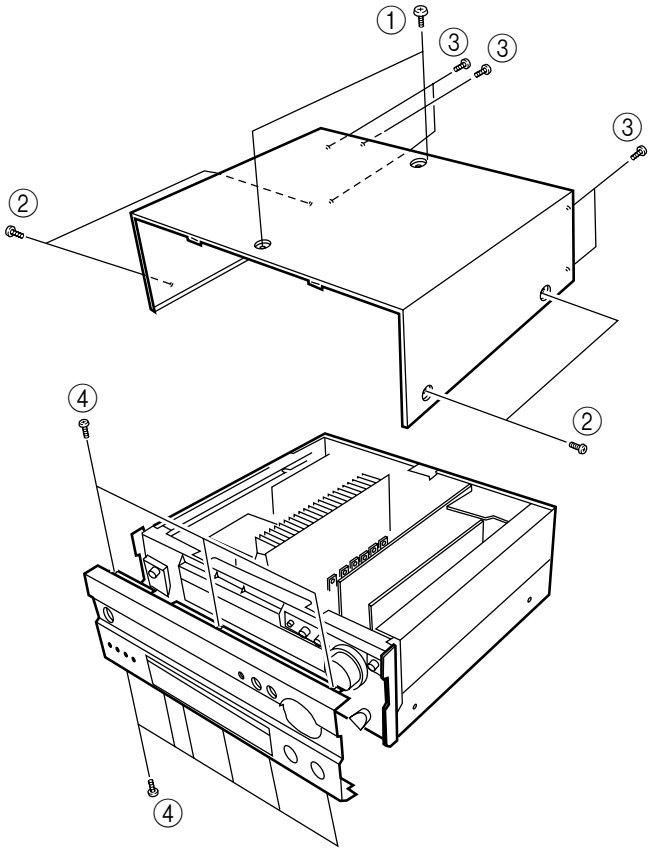


Fig. 1

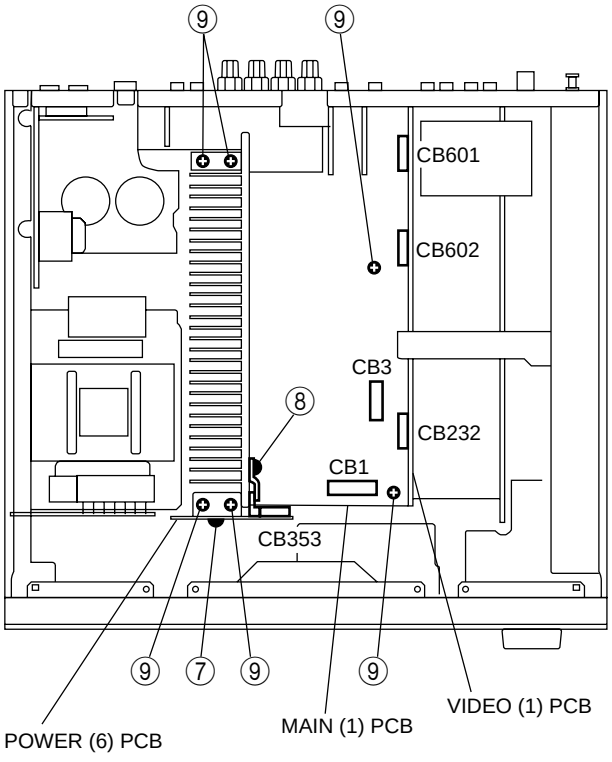


Fig. 2

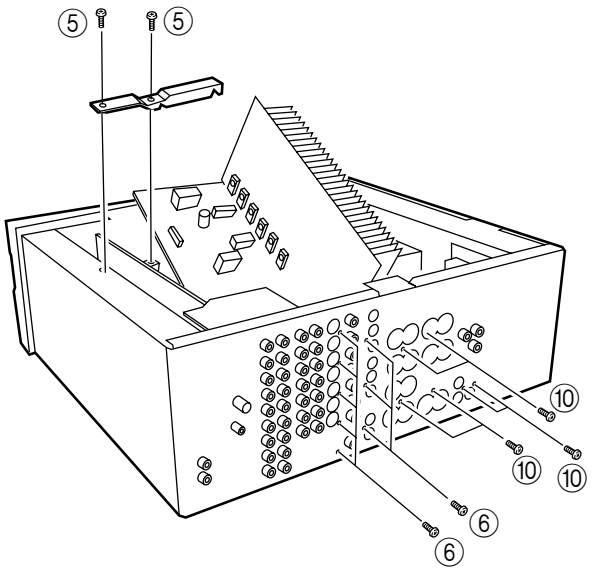


Fig. 3

■ SELF DIAGNOSIS FUNCTION (DIAG)

There are 13 DIAG menu items each of which has sub-menu items. Listed in the table below are menu items and sub-menu items.

No.	DIAG menu	sub-menu	Remote control code (key)
1	DSP THROUGH	1. ANALOG BYPAS (ANALOG BYPASS)	7A-90 (PRG 9)
		2. DSP 0dB	7A-91 (PRG 10)
		3. DSP FULL BIT	7A-92 (PRG 11)
2	HP ROUTE	1. HP 0dB	7A-93 (PRG 12)
		2. HP FULL BIT	7A-10 (PRESET+)
3	RAM THROUGH	1. RAM 0dB	7A-11 (PRESET-)
		2. MAIN ATT	7A-12 (PAGE)
4	PRO LOGIC	1. YSS928	7A-0C (CD FF)
5	SPEAKERS SET	1. MAIN:SML 0dB (MAIN:SMALL 0dB)	7A-88 (PRG 1)
		2. MAIN:LRG -10dB (MAIN:LARGE -10dB)	7A-89 (PRG 2)
		3. CENTER:NONE	7A-8A (PRG 3)
		4. LFE/B:MAIN (LFE/BASS:MAIN)	7A-8B (PRG 4)
		5. Front Mix:5ch	7A-8C (PRG 5)
6	DISPLAY CHECK	1. VFD CHECK (initial screen)	7A-8F (PRG 8)
		2. VFD DISP OFF (All segments OFF)	–
		3. VFD DISP ALL (All segments ON 100%)	–
		4. VFD DIMMER (All segments ON 50%)	–
		5. CHECKED PATTERN (ON in lattice)	–
7	MANUAL TEST	1. ALL	7A-00 (TP PLAY)
		2. MAIN L	7A-01 (TP RW)
		3. CENTER	7A-02 (TP FW)
		4. MAIN R	7A-03 (TP STOP)
		5. REAR R	7A-04 (TP PAUSE)
		6. REAR L	7A-06 (TP A/B)
		7. LFE	7A-09 (CD STOP)
8	RS-232C	1. TxRx DATA (unused)	–
		2. HARD FLOW (unused)	–
9	PRESET	1. PRESET INHIBIT (memory initialization inhibited)	–
		2. PRESET RESERVED (memory initialized)	7A-57 (SLEEP)
10	AD DATA CHECK	1. REC-OUT (unused)	–
		2. K0/K1 (panel key)	–
		3. DC/PS (protection)	7A-0B (CD SKIP-)
11	IF STATUS	1. IST (internal status)	–
		2. CS1 (channel status 1)	–
		3. CS2 (channel status 2)	–
		4. CS3 (channel status 3)	–
		5. CS4 (channel status 4)	–
		6. CS5 (channel status 5)	–
		7. BI1 (BSI-DD 1)	–
		8. BI2 (BSI-DD 2)	–
		9. BI3 (BSI-DD 3)	–
		10. BI4 (BSI-DD 4)	–
		11. BS1 (BSI-DTS 1)	–
		12. BS2 (BSI-DTS 2)	–
		13. BS3 (BSI-DTS 3)	–
		14. BS4 (BSI-DTS 4)	–
		15. YS1 (YSS-928-1)	–
		16. YS2 (YSS-928-2)	–
		17. YS3 (YSS-928-3)	–
12	DSP RAM CHECK	Bus Check	7A-0A (CD SKIP+)
13	VERSION/CHECK SUM/PORT	1. VER. (Version information)	7A-0D (CD REW)
		2. A/P (Checksum ALL/PROG)	–
		3. 2/M (Checksum 232C/MAKER)	–
		4. PORT (Port check)	–

• Starting DIAG

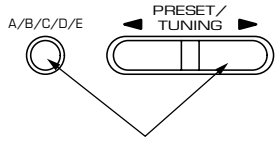
Press the “STANDBY/ON key while pressing those two keys indicated in the figure on the right.

• Starting DIAG in the protection cancel mode

If the protection function works and causes hindrance to trouble diagnosis, cancel the protection function as described below, and it will be possible to enter the DIAG mode. (The protection function other than the excess current detect function will be cancelled.)

Press the “STANDBY/ON key while pressing those two keys indicated in the figure on the right. At this time, keep pressing those two keys for 3 seconds or longer.

Keys of main unit (in sealing panel)



Turn on the power while pressing these keys.

In this mode, the “ZONE2” segment of the FL display of the main unit flashes to indicate that the mode is DIAG mode with the protection functions cancelled.

CAUTION!

Note that during the DIAG mode with protection functions cancelled, even when a danger is encountered, protection functions do not work. Therefore, operating the equipment in this mode may cause danger to it. Use special care for this point when using this mode.

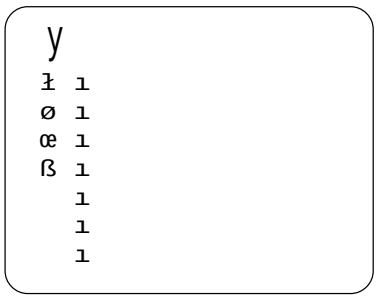
• Canceling DIAG

[1] Before canceling DIAG, execute setting for PRESET of DIAG menu No.9 (Memory initialization inhibited or Memory initialized).
* In order to keep the user memory stored, be sure to select PRESET INHI (Memory initialization inhibited).

[2] Turn off the power by pressing the “STANDBY/ON” key of the main unit or the “STANDBY” key of the remote controller.

• Display provided when DIAG started

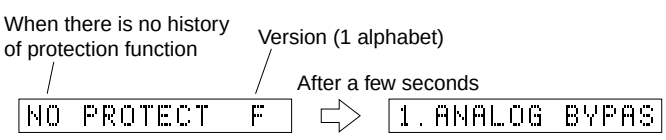
When the monitor is connected, DIAGNOSTIC MENU appears on its screen as shown in the figure. (It remains on display until DIAG is cancelled.)



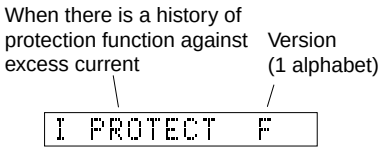
The FL display of the main unit displays the protection function history data and the version (1 alphabet) and the DIAG menu (sub-menu (ANALOG BYPASS) of DIAG menu No.1 DSP THROUGH) a few seconds later.

When there is no history of protection function:

Opening message **DIAG menu display**

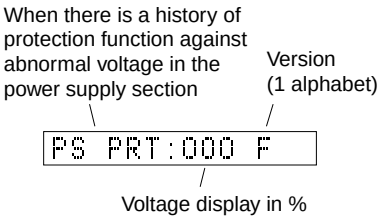


When there is a history of protection function:



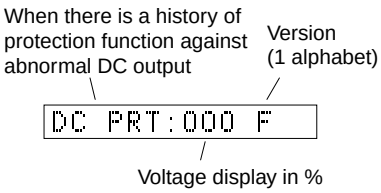
Cause: An excessive current flowed to the power amplifier.
Supplementary information: As current of the power transistor is detected, the abnormal channel can be identified by checking the current detect transistor.

Turning on the power without correcting the abnormality will cause the protection function to work immediately and the power supply will soon be shut off.


When there is a history of protection function against abnormal voltage in the power supply section
Version (1 alphabet)
PS PRT:000 F
Voltage display in %

Cause: The voltage in the power supply section is abnormal.
Supplementary information: The abnormal voltage is displayed in % based on 5V as 100%.

Turning on the power without correcting the abnormality will cause the protection function to work 1 second later and the power supply will be shut off.


When there is a history of protection function against abnormal DC output
Version (1 alphabet)
DC PRT:000 F
Voltage display in %

Cause: DC output of the power amplifier is abnormal.
Supplementary information: The abnormal voltage is displayed in % based on 5V as 100%.

Turning on the power without correcting the abnormality will cause the protection function to work 3 seconds later and the power supply will be shut off.

* Besides above possible causes for abnormality, a cause may lie in disconnected connector, around CPU, etc.
* For the protection voltage value, refer to DIAG menu No.10 described later.

• History of protection function
When the protection function has worked, its history is stored in memory with a backup. Even if no abnormality is noted while servicing the unit, an abnormality which has occurred previously can be defined as long as the backup data has been stored.
The history of the protection function is cleared when DIAG is cancelled by selecting RESERVED (Memory initialized) of DIAG menu No.9 or when the backup data is erased.

• Display during menu operation

During the DIAG operation, the menu list described in the section of the startup screen appears on the superimposed screen and the function at work is indicated on the FL indicator. The contents displayed during the function operation are described in the later section on details of functions.

• Operation procedure of DIAG menu and SUB-MENU

There are No.1 to No.13 MENU items, each of which has some SUB-MENU items.

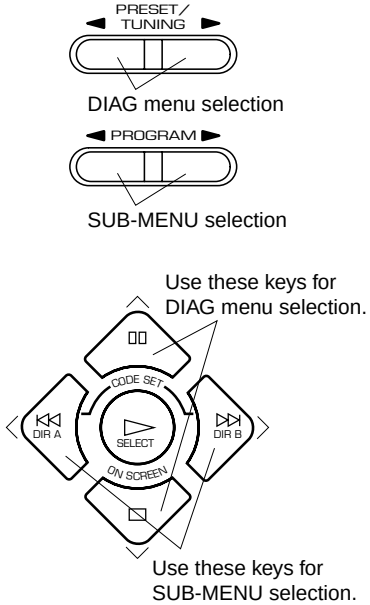
DIAG menu selection

Main unit: Select the menu using ◀ (Forward) and ▶ (Reverse) keys of PRESET/TUNIG located in the sealing panel.
Remote control unit: Select the menu using ▲ (Forward) and ▼ (Reverse)keys.

SUB-MENU selection

Main unit: Select the sub-menu using ◀ (Forward) and ▶ (Reverse) keys of PROGRAM located in the sealing panel.
Remote control unit: Select the sub-menu using ◀ (Forward) and ▶ (Reverse)keys.

* Only the remote control keys indicated in the MENU List can be used to select a sub-menu directly.



• Functions in DIAG mode

In addition to the DIAG menu items, functions as listed below are available.
• Input selection, 6CH input
• REC OUT (ZONE2) switching
• Center/Rear/Sub-woofer level adjustment
• Muting
• Speaker relay A/B
• Power on/off
• Master volume
It is possible to set to the following volume values directly by transmitting remote control codes during the DIAG operation only.

Volume value (dB)	Remove control code	Remote control key
0	7A-E0	PAGE A
-20	7A-E1	PAGE B
-30	7A-E2	PAGE C
MUTE	7A-E3	PAGE D

* Functions related to the tuner and the set menu are not available.
* It is possible to confirm Menu No.11 IF STATUS while keeping the signal process (operation status) of each DIAG menu by using the input mode key of the main unit.

• Initial settings used to start DIAG

Following initial settings are used when starting DIAG.
When DIAG is canceled, these settings are restored to those before starting DIAG.

• Master volume: -40dB
• Input, ZONE2 input: DVD (6CH INPUT OFF)
• Center/Rear/Sub-woofer level: 0dB
• Audio mute: OFF
• Speaker relay A/B: ON
• Speaker setting: LARGE / BASS OUT = BOTH
• DIAG menu: DSP through (analog bypass)

• Details of DIAG menu

1. DSP THROUGH

There are 3 sub-menu items (ANALOG BYPAS, DSP 0dB, DSP FULL BIT).

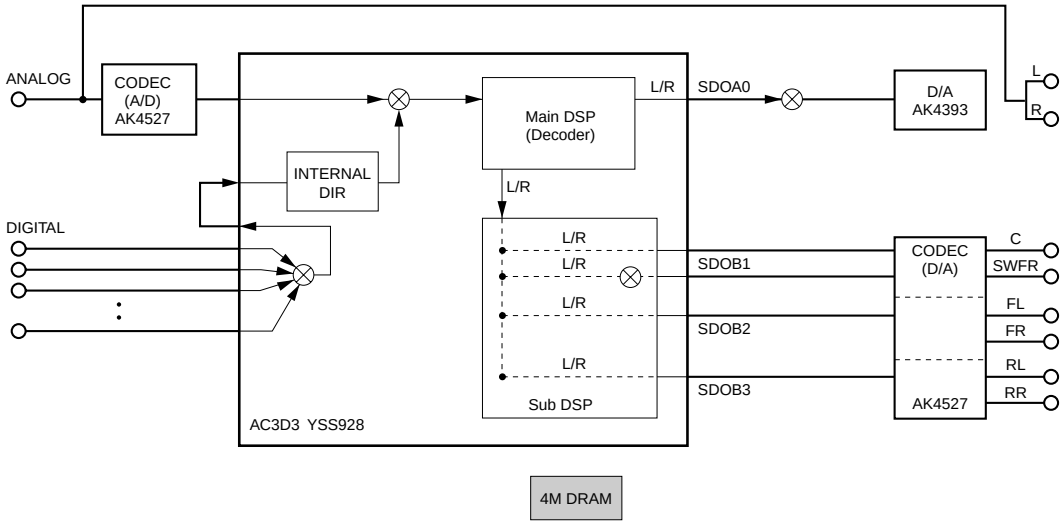
1.ANALOG BYPAS

ANALOG BYPASS [Remote control code: 7A-90 (PRG9)]

- The input mode is fixed to use the analog (A/D) system.
- The L/R signal is output through the analog bypass without using the DSP block.
- C/SWF, FL/FR, RL/RR signals are output through DSP (see the signal path in the figure below) without using the external DRAM. (Head margin included)

Head margin:

Center: -6dBFS, Rear Center: -3dBFS, FL/FR: -6dBFS, RL/RR: -12dBFS, SWFR: Add L/R signal at -20dBFS.



SDOxx represents a terminal name of AC3D3.

The shaded square ( ) means that the element indicated in it does not operate.

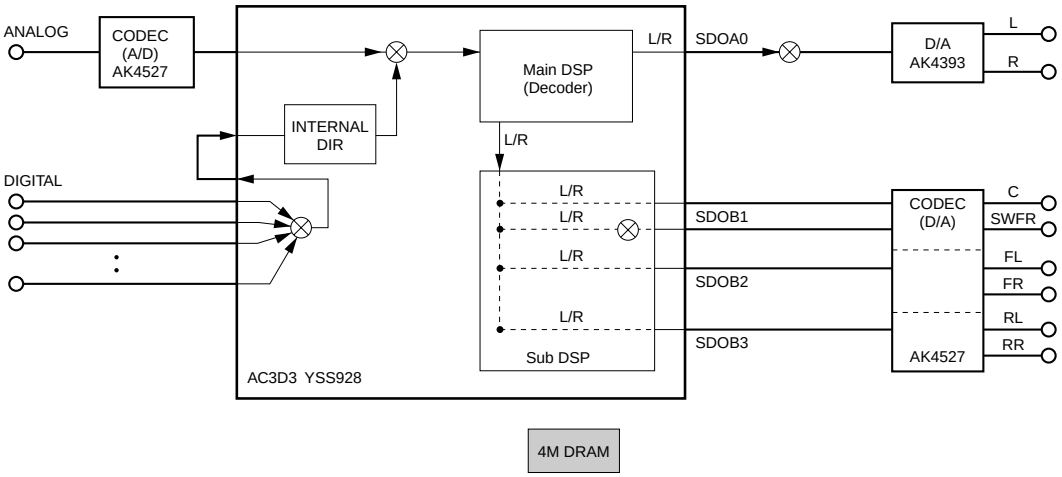
DSP 0dB [Remote control code: 7A-91 (PRG 10)]

1.DSP 0dB

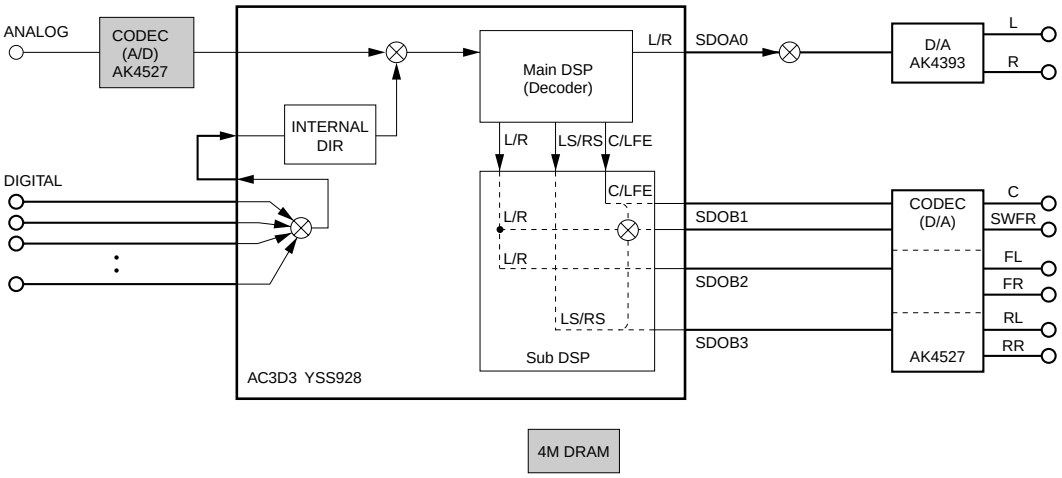
- C/SWFR, FL/FR, RL/RR signals are output through DSP (see the signal path in the figure below) without using the external DRAM. (Head margin included)

Head margin:
Main L/R: 0dBFS, Center: -6dBFS, Rear Center: -3dBFS, FL/FR: -6dBFS, RL/RR: -12dBFS, SWFR: Add L/R signal at -20dBFS.

[2ch source]



[Multi ch source]



SDOxx represents a terminal name of AC3D3.

The shaded square ( ) means that the element indicated in it does not operate.

DSP FULL BIT [Remote control code: 7A-92 (PRG 11)]

1.DSP FULL BIT

- The signal is output in digital full bit without including the head margin.
- The same applies as “DSP 0dB” except that the digital data is output in full bit at D/A.
- However, the SWFR signal is not output in full bit.

2. HP ROUTE

There are 2 sub-menu items (HP 0dB and HP FULL BIT).

2. HP 0dB

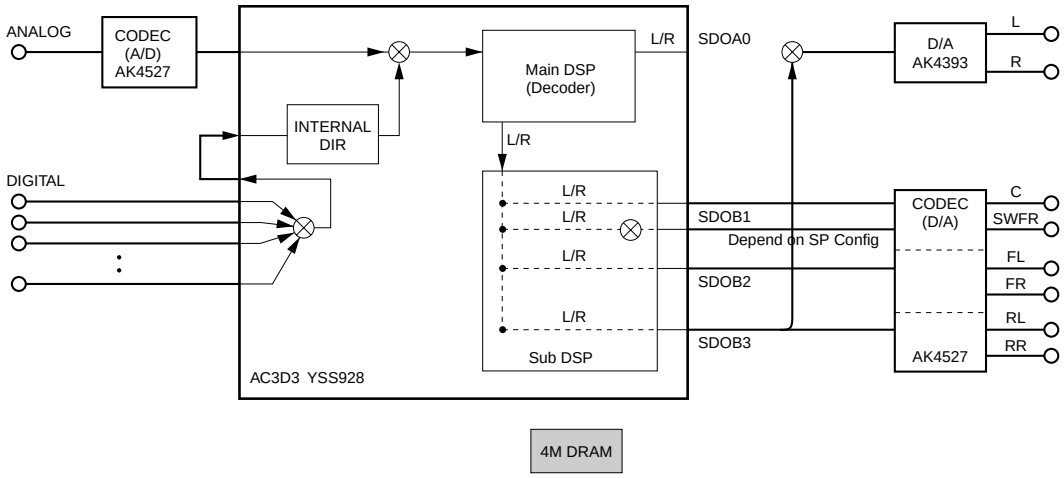
HP 0dB [REMOTE CONTROL CODE: 7A-93 (PRG 12)]

- L/R, C/SWFR, FL/FR, RL/RR signals are output through DSP (see the signal path in the figure below) without using the external DRAM. (Head margin included)
- SDOB3 output is input to Main L/R DAC. Other than that, everything is the same as DSP THROUGH.

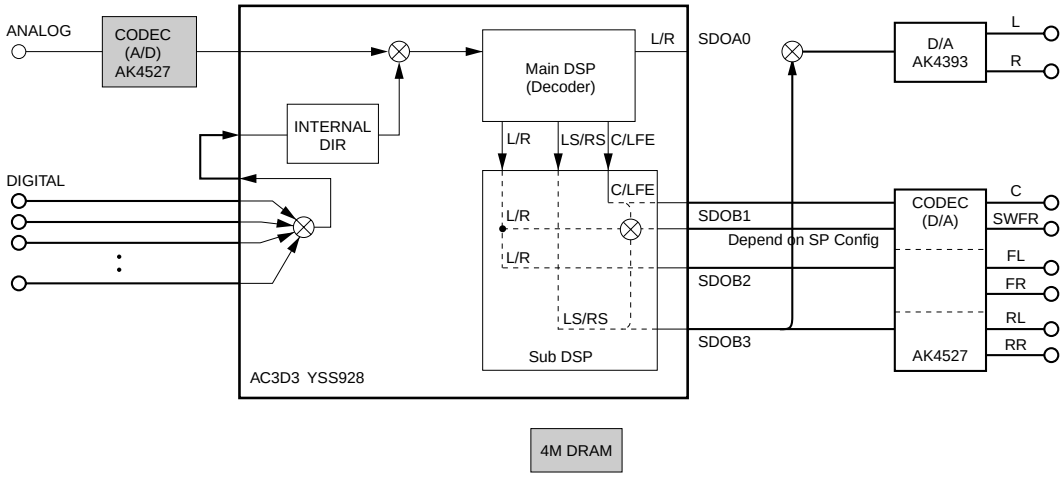
Head margin:

Main L/R: -18dBFS, Center: -6dBFS, Rear Center: -3dBFS, FL/FR: -6dBFS, RL/RR: -18dBFS, SWFR: Add L/R signal at -20dBFS.

[2ch source]



[Multi ch source]



SDOxx represents a terminal name of AC3D3.

The shaded square ( ) means that the element indicated in it does not operate.

2. HP FULL BIT

HP FULL BIT [Remote control code: 7A-10 (PRESET+)]

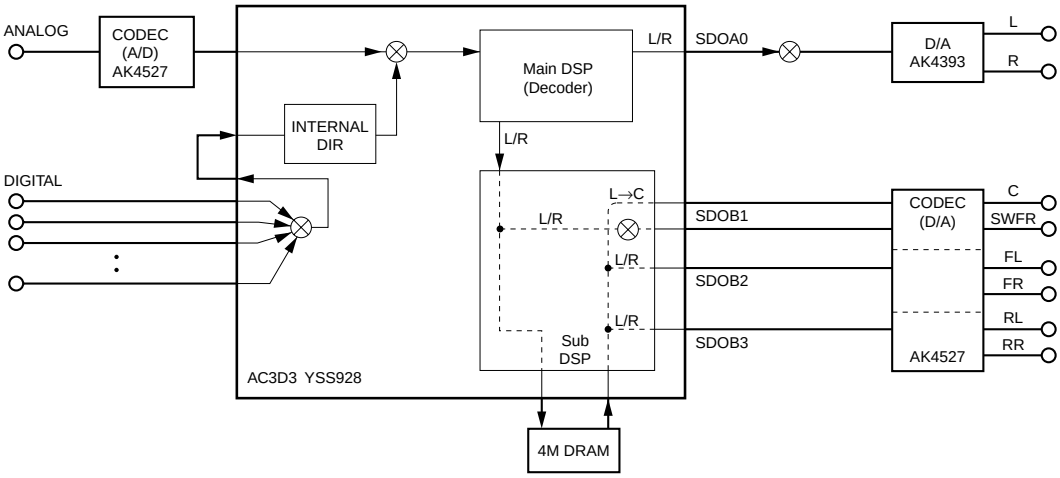
- The signal is output in digital full bit without including the head margin.
- The same applies as “HP 0dB” except that the digital data is output in full bit at D/A.
- However, the SWFR signal is not output in full bit.

3. RAM THROUGH

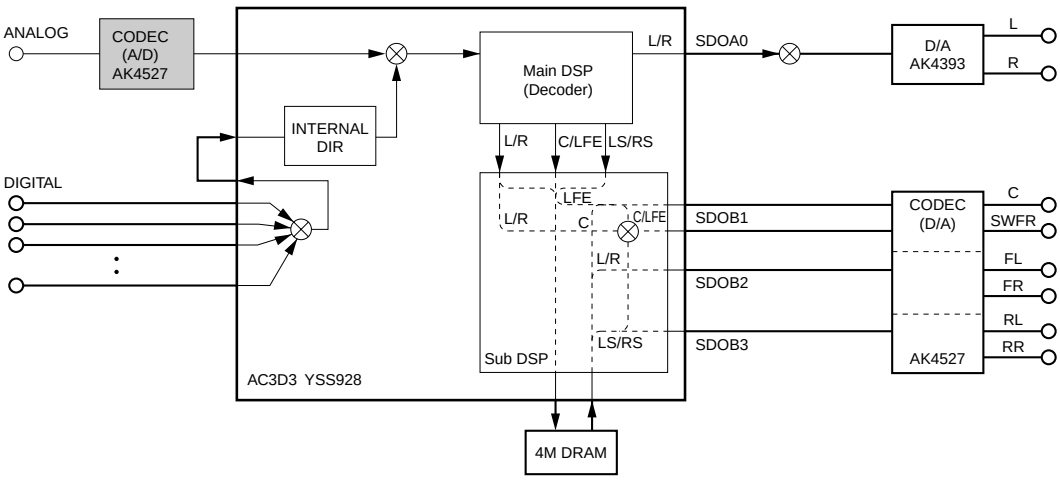
The main L/R uses the analog through method when analog signals are input and the DSP through method when digital signals are input.
The Center, FL/FR and RL/RR signals are output through the external DRAM.

3.RAM 0dB	**RAM 0dB** [REMOTE CONTROL CODE: 7A-11 (PRESET-)]
3.MAIN ATT	**MAIN ATT** [REMOTE CONTROL CODE: 7A-12 (PAGE)]

[2ch source]



[Multi ch source]



SDOxx represents a terminal name of AC3D3.

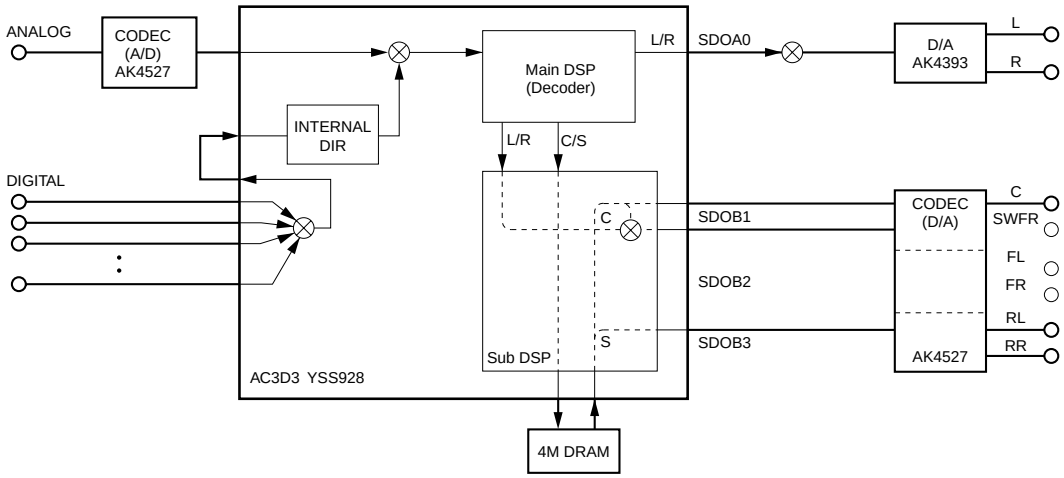
The shaded square ( ) means that the element indicated in it does not operate.

4. PRO LOGIC [YSS928]

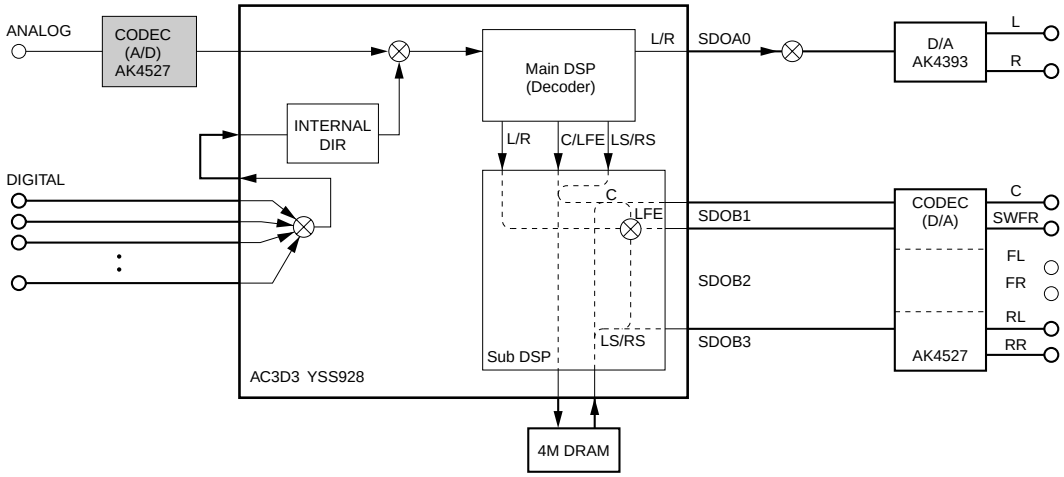
Operation conforming to the ordinary Dolby Normal sound field is provided.

[REMOTE CONTROL CODE: 7A-0C (CD FF)]

[2ch source] Same as ordinary Pro Logic except that the auto input balance function is off.



[Dolby D./dts Normal]

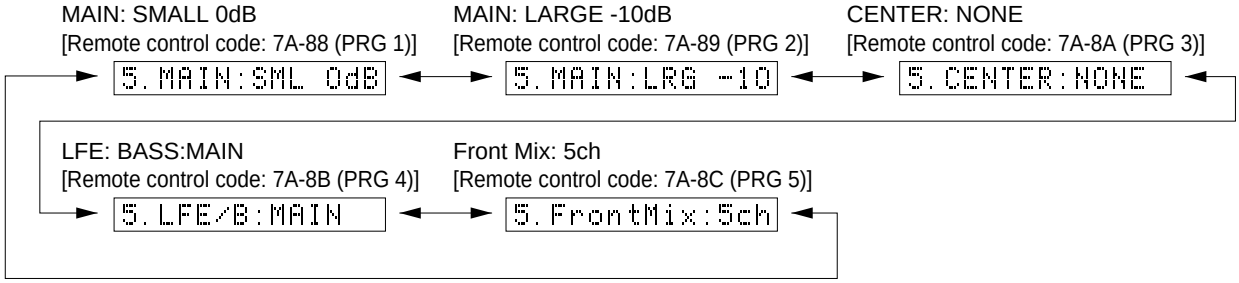


SDOxx represents a terminal name of AC3D3.

The shaded square ( ) means that the element indicated in it does not operate.

5. SPEAKERS SET

The input signal is automatically identified in the order of dts → DOLBY DIGITAL → PCM → Analog.
There are five sub-menu items as follows. The signals output from the DSP block are the same as 1. DSP THROUGH: DSP 0dB.



The analog switch settings for each sub-menu are as shown in the table below.

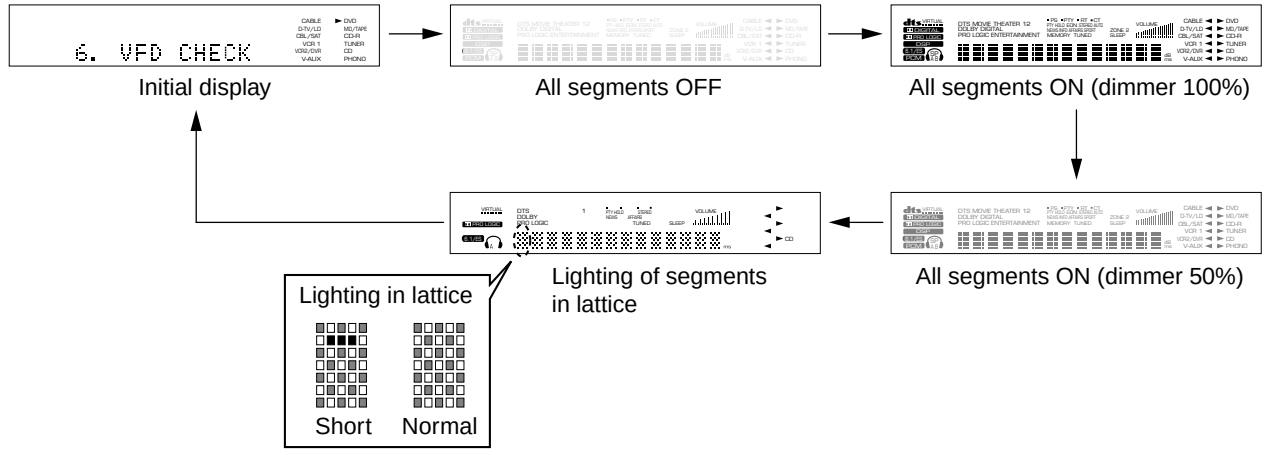
	Sub-menu	CENTER SP	REAR SP	MAIN SP	MAIN LVL	LFE/BASS
1	MAIN:SMALL 0dB	LARGE	LARGE	SMALL	0dB	SWFR
2	MAIN:LARGE -10	LARGE	LARGE	LARGE	-10dB	BOTH
3	CENTER:NONE	NONE	LARGE	LARGE	0dB	BOTH
4	LFE/BASS:MAIN	SMALL	SMALL	LARGE	0dB	MAIN
5	FRONT MIX:5CH	LARGE	LARGE	LARGE	0dB	BOTH

LARGE: Signals are output in all bandwidths.
SMALL: Signals lower than 90Hz are mixed in the channel specified by LFE/BASS.
NONE: The center contents are distributed to the MAIN L/R channels after -3dB.

6. DISPLAY CHECK

This program is used to check the FL display section. The display condition varies as shown below according to the sub-menu operation. The signals are processed using EFFECT OFF (The L/R signal is output using ANALOG MAIN BYPASS.)
The video signal internal/external synchronization switching is controlled by the microprocessor. When the initial message is displayed and all the FL segments light up, it is switched to the internal synchronization but other than that it is forced to the external synchronization setting.
Also, except for the initial display, 128 pictographs for checking the OSD driver are used for the video signal output display.

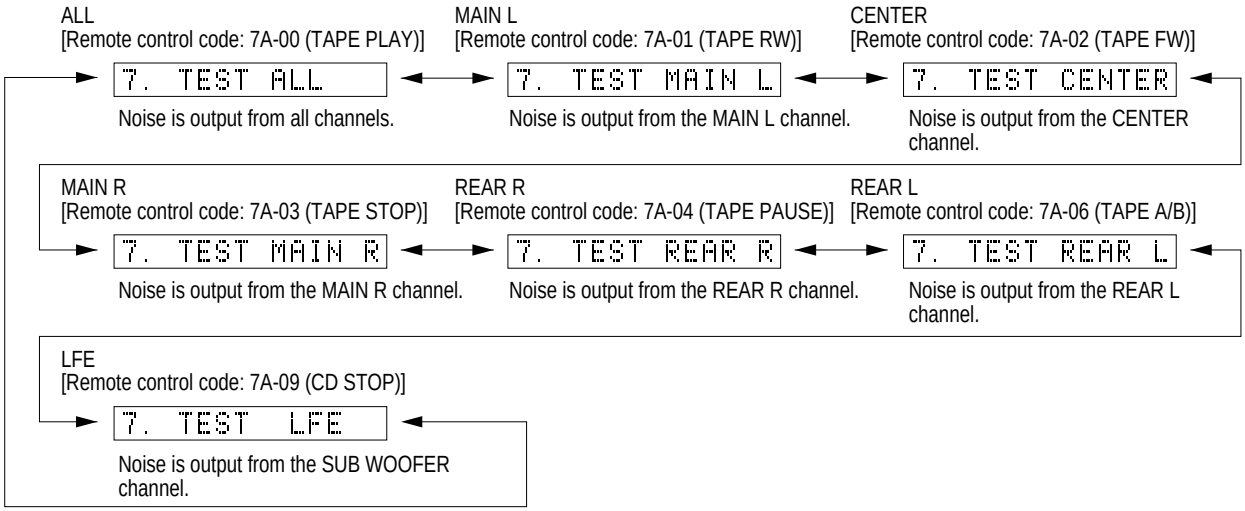
[Remote control code: 7A-8F (PRG 8)]



Segment conditions of the FL driver and the FL tube are checked by turning ON and OFF all segments. Next, the operation of the FL driver is checked by using the dimmer control. Then a short between segments next to each other is checked by turning ON and OFF all segments alternately (in lattice). (In the above example, the segments in the second row from the top are shorted.)

7. MANUAL TEST

The noise generator with a built-in DSP outputs the test noise through the channels specified by the sub-menu.
The noise frequency for LFE is 35 to 250 Hz. Other than that, the center frequency is 800Hz.

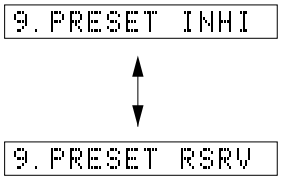

ALL
[Remote control code: 7A-00 (TAPE PLAY)]
7. TEST ALL
Noise is output from all channels.
MAIN L
[Remote control code: 7A-01 (TAPE RW)]
7. TEST MAIN L
Noise is output from the MAIN L channel.
CENTER
[Remote control code: 7A-02 (TAPE FW)]
7. TEST CENTER
Noise is output from the CENTER channel.
MAIN R
[Remote control code: 7A-03 (TAPE STOP)]
7. TEST MAIN R
Noise is output from the MAIN R channel.
REAR R
[Remote control code: 7A-04 (TAPE PAUSE)]
7. TEST REAR R
Noise is output from the REAR R channel.
REAR L
[Remote control code: 7A-06 (TAPE A/B)]
7. TEST REAR L
Noise is output from the REAR L channel.
LFE
[Remote control code: 7A-09 (CD STOP)]
7. TEST LFE
Noise is output from the SUB WOOFER channel.

8. RS-232C

RX-V800 does not use this menu.

9. PRESET

This menu is used to reserve and inhibit initialization of the back-up RAM. The signals are processed using EFFECT OFF. (The L/R signal is output using ANALOG MAIN BYPASS.)



PRESET INHIBIT (Initialization inhibited) [REMOTE CONTROL CODE: –]
RAM initialization is not executed. Select this sub-menu to protect the values set by the user.

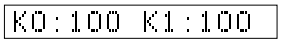
PRESET RESERVED (Initialization reserved) [REMOTE CONTROL CODE: 7A-57 (SLEEP)]
Initialization of the back-up RAM is reserved. (Actually, initialization is executed next time when the power is turned on.) Select this sub-menu to reset when shipped out of the factory or to reset RAM.

10. AD DATA CHECK

This menu is used to display the A/D conversion value of the main CPU which detects panel keys of the main unit and protection functions in % using the sub-menu. (Reference voltage 5V as 100%) During signal processing, the condition before execution is maintained.

When in K0/K1 page, it is not possible to operate the keys of the main unit because the values of all keys are detected. But one click on the volume encoder of the main unit to the right or left will cancel this function and sets to the next sub-menu. Note, however, that clicking there more than once would change the DIAG menu. In such a case, return to the DIAG menu which has been used for measurement. During signal processing, the condition before execution of this menu is maintained.

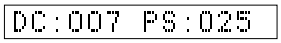
REC OUT [Remote control code: –]
RX-V800 does not use this sub-menu.



K0/K1 (Panel key of main unit) [Remote control code: –]
A/D of the key fails to function properly when the standard value is deviated by ±4%. In this case, check the constant of partial pressure resistor, solder condition, etc.

[Table 1]

Display	K0	K1
0	PRESET ▶	6CH INPUT
10	PRESET ◀	INPUT ▶
20	PRESET/TUNING	INPUT ◀
30	FM/AM	INPUT MODE
40	MEMORY	SPEAKERS A
50	TUNING MODE	SPEAKERS B
60	RDS MODE	EFFECT
70	RDS EON	PROGRAM ▶
80	PTY MODE	PROGRAM ◀
90	PTY START	A/B/C/D/E
100	KEY OFF	KEY OFF



DC/PS (Protection) [REMOTE CONTROL CODE: 7A-0B (CD SKIP-)]
DC: DC detect protection value (Normal value: 1 to 13)
PS: Power voltage protection value (Normal value: 18 to 32)

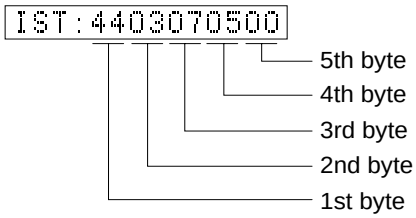
* If DC or PS is out of the normal value range, the protection function works to turn off the power.

11. IF STATUS

Using the sub-menu, the status data is displayed one after another in the hexadecimal notation.
During signal processing, the status before execution of this menu is maintained.

* Numeric values in the figure example are for reference.

IST (Internal status) [REMOTE CONTROL CODE: –]
Indicates the status information of the microprocessor.



<1st byte> Digital input/output setting value
Upper 4 bits: REC OUT selected/lower 4 bits: INPUT selected

Numeric value	Selection	Numeric value	Selection	Numeric value	Selection	Numeric value	Selection
0	NONE	4	OPT3	8	COAX1	C	COAX3
1	FRONT	5	OPT4	9	COAX2	D	RF
2	OPT1	6	OPT5	A	COAX4		
3	OPT2	7	OPT6	B	COAX5		

<2nd byte> Fs information of reproduction signal

Display	00	01	02	03	04	05	06	07	08	09
Fs (kHz)	Analog	32	44.1	48	64	88.2	96	Unknown NRM	Unknown DBL	Not defined

<3rd byte> Audio code mode information of reproduction signal

Display	00	01	02	03	04	05	06	07	08	09	0A	0B
Audio Code	1+1	1/0	2/0	3/0	2/1	3/1	2/2	3/2	2/3	3/3	dts7.1	Not defined

<4th byte> Format information of reproduction signal

*1: Analog processing is used as digital reproduction is not possible because of a commercial bit or 4-ch audio reason.

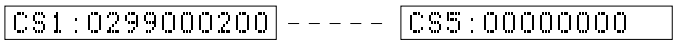
Display	Signal format
00	Analog (Unlock)
01	Incorrect digital (*1)
02	Digital Data
03	IEC1937 Data
04	PCM Audio
05	Dolby Digital
06	D.D.Karaoke
07	D.D.EX
08	RED dts
09	ORANGE dts
0A	dts ES
0B	NONE PCM

<5th byte> Signal processing status information

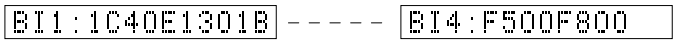
*2: With digital signals other than 32kHz, 44.1kHz and 48kHz, through processing method is used for reproducible signals.

bit7	MUTE request	bit3	–
bit6	Red dts flashing	bit2	Through & bypass (*2)
bit5	6.1ch. sound field being processed	bit1	–
bit4	FULL MUTE (ON: 1)	bit0	dts analog mute

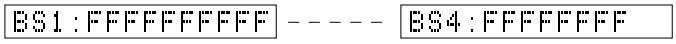
CS1-5 [Remote control code: -]: Indicates channel status information of the input signal (IEC60958).



BI1-4 [Remote control code: -]: Indicates information of the bit stream included in the DOLBY DIGITAL signal.

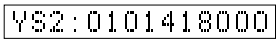


BS1-4 [Remote control code: -]: Indicates information of the bit stream included in the dts signal.

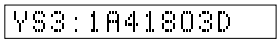


YS1-3 [Remote control code: -] Indicates device status information of YSS928 (IC501). * The numeric value in the figure is an example for reference.

Byte No.	Function
1	YSS MUTE Reg
2	YSS MODE Reg
3	YSS IPORT BIT 7-0
4	YSS IPORT BIT 14-8
5	YSS OPORT



Byte No.	Function
1	IEC 1937 Preamble Pc
2	AC-3 Data Stream No
3	AC-3D Decode Status
4	YSS ZERO Reg
5	MIREG



Byte No.	Function
1	DIR Status
2	DIR fs
3	DIR fs count
4	YSS ZEROBF

12. DSP RAM CHECK

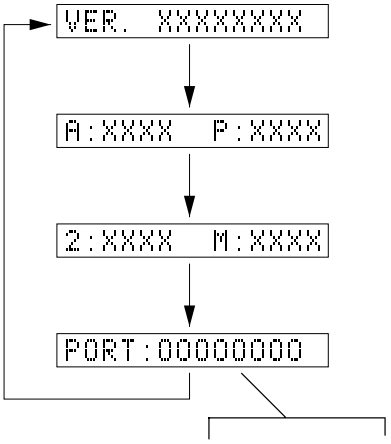
This menu is used to self-diagnose whether or not bus connection of YSS928 (IC501) and the external RAM (IC502) is made properly.
During signal processing, the status before execution of this menu is maintained.

Bus Check [Remote control code: 7A-0A (CD SKIP+)]
The address bus and the data bus are checked and the connection condition is displayed.
When no error is detected, "NoEr" appears on display.

Display	Description
WAIT	Bus being checked.
NoEr	No error detected.
DATA	Data bus shorted or open.
ADDR	Address bus shorted or open.

13. MICROPROCESSOR INFORMATION

There are 4 sub-menu display.
The version, checksum and the port specified by the microprocessor are displayed. The signal is processed using EFFECT OFF. The checksum is obtained by adding the data at every 16 bits for each program area and expressing the result as a 4-figure hexadecimal data.

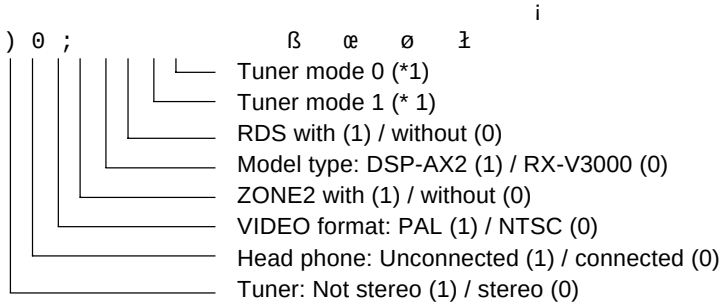


Version [Remote control code: 7A-0D (CD REW)]
Release 1 figure / Main 2 figures / DSP 2 figures / Communication 1 figure / Boot manufacturer 1 figure / Boot 232c 1 figure

Checksum [Remote control code: –]
A : All P : Program area

Checksum [Remote control code: –]
2 : Boot 232C M : Boot manufacturer

Check of port setting for judging microprocessor function [Remote control code: –]


i
) 0 ;
ß œ ø Ł
Tuner mode 0 (*1)
Tuner mode 1 (* 1)
RDS with (1) / without (0)
Model type: DSP-AX2 (1) / RX-V3000 (0)
ZONE2 with (1) / without (0)
VIDEO format: PAL (1) / NTSC (0)
Head phone: Unconnected (1) / connected (0)
Tuner: Not stereo (1) / stereo (0)

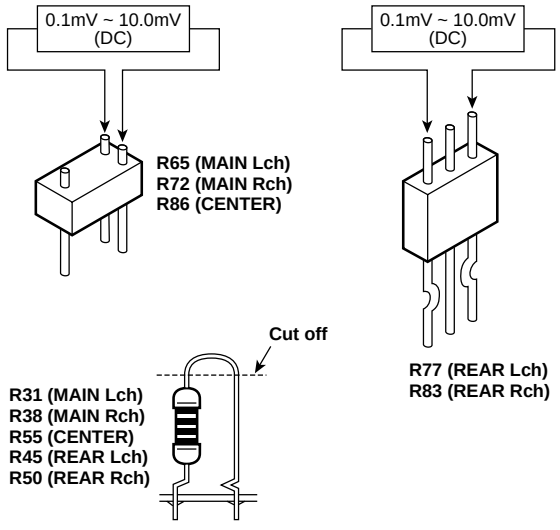
*1

Tuner mode 0	Tuner mode 1	Tuner frequency
0	0	AM: 531-1611kHz/9kHz FM: 76.0-90.0MHz/100kHz
0	1	AM: 531-1611kHz/9kHz FM: 87.5-108.0MHz/50kHz
1	0	AM: 530-1710kHz/10kHz FM: 87.5-107.9MHz/200kHz
1	1	R destination, Port6: LOW AM: 530-1710kHz/10kHz FM: 87.5-108.0MHz/100kHz HIGH AM: 531-1611kHz/9kHz FM: 87.5-108.0MHz/50kHz

■ AMP ADJUSTMENT

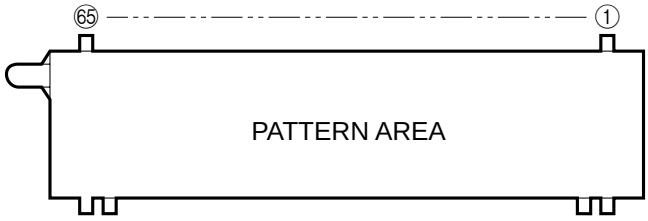
Confirmation of Idling Current of Main (1) P. C. B.

- Right after power is turned on, confirm that the voltage across the terminals of R65 (Main Lch), R72 (Main Rch), R86 (Center), R77 (Rear Lch), R83 (Rear Rch) are between 0.1mV and 10.0mV.
- If it exceeds 10.0mV, open (cutoff) R3 (Main Lch), R38 (Main Rch), R55 (Center), R45 (Rear Lch), R50 (Rear Rch) and reconfirm the voltage.
- Confirm that the voltage is 0.20mV ~ 15.0mV after 60 minutes.



■ DISPLAY DATA

● **V901 : 16-BT-81GK (V5917600)**



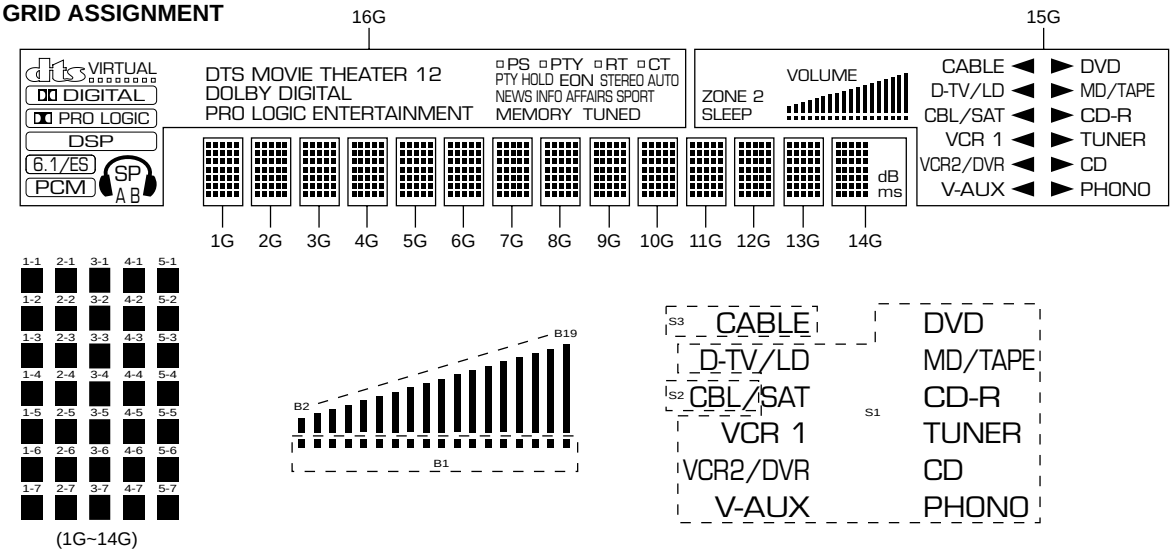
● **PIN CONNECTION**

Pin No.	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33
Connection	F2	F2	NP	P37	P36	P35	P34	P33	P32	IC	NP	Fd	Fd	NP	IC	P31	P30	P29	P28	P27	P26	P25	P24	P23	P22	P21	P20	P19	P18	P17	P16	P15	P14

Pin No.	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Connection	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	F1	F1

Note : 1) F1, F2 ..... Filament 2) NP ..... No pin 3) DL ..... Datum Line 4) 1G ~ 16G ..... Grid
5) IC ..... Internal connection (IC pin should be electrically open on the PC board.) 6) Fd terminals are to be supplied through 51kΩ from Ec.
7) Field of vision is a minimum of 36˚ from the upper side. 26˚ from the lower side.

● **GRID ASSIGNMENT**



(1G~14G)

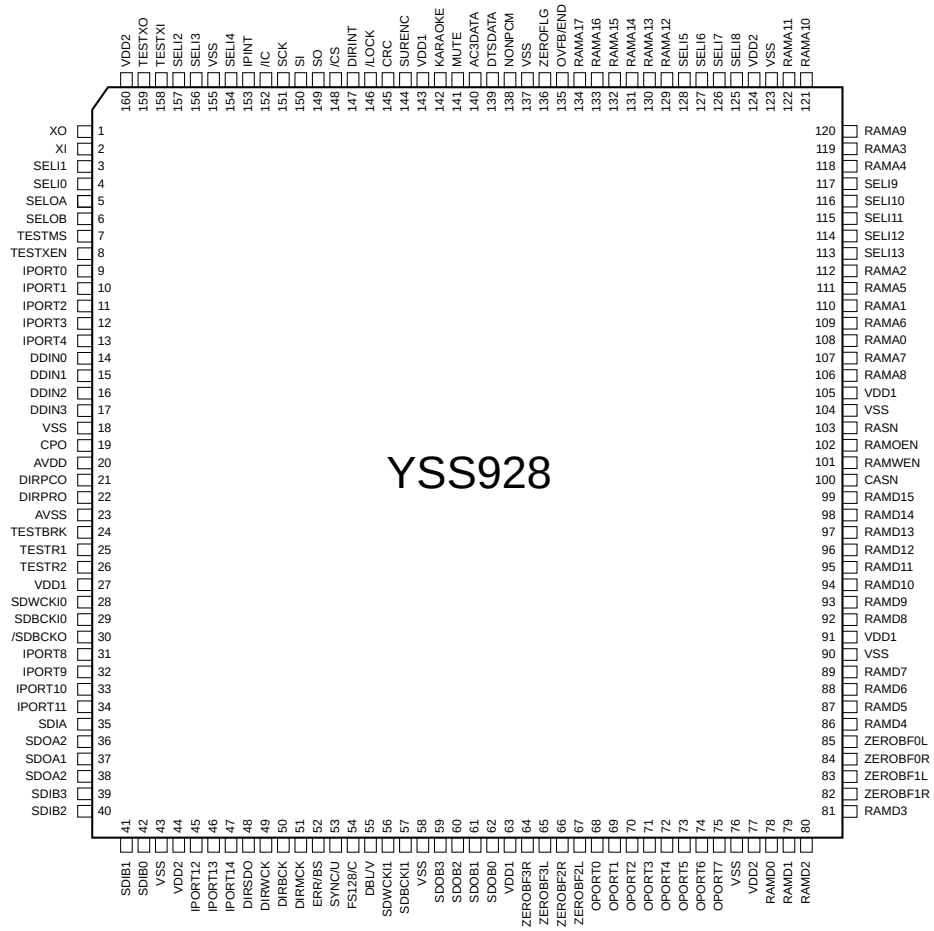
● **ANODE CONNECTION**

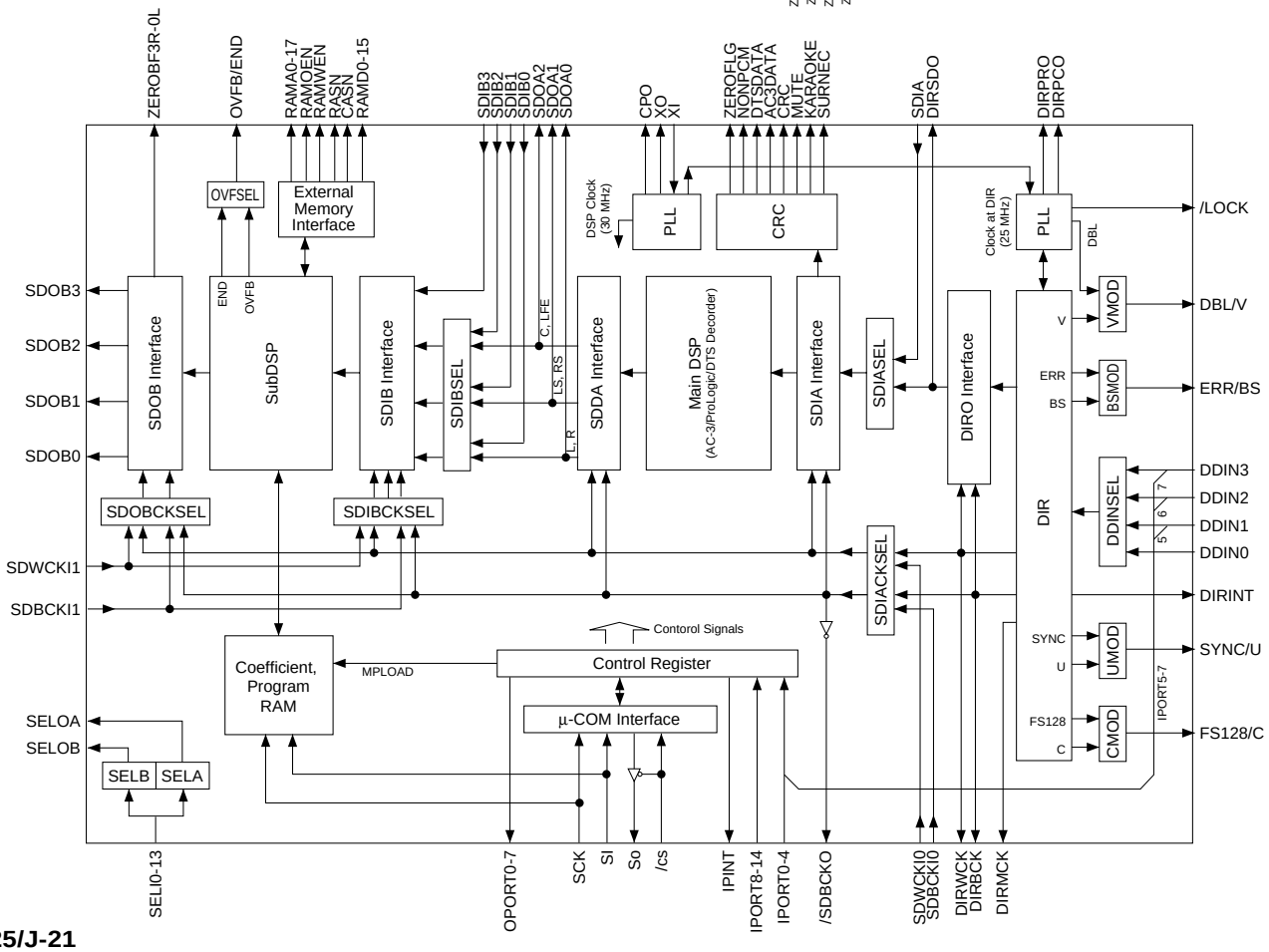
	16G	15G	14G	13G~1G
P1	dts	ZONE 2	1-1	1-1
P2	VIRTUAL	SLEEP	2-1	2-1
P3	DIGITAL	VOLUME	3-1	3-1
P4	PRO LOGIC	B1	4-1	4-1
P5	DSP	B2	5-1	5-1
P6	6.1/ES	B3	1-2	1-2
P7	PCM	B4	2-2	2-2
P8		B5	3-2	3-2
P9	SP	B6	4-2	4-2
P10	A	B7	5-2	5-2
P11	B	B8	1-3	1-3
P12	DTS	B9	2-3	2-3
P13	MOVIE THEATER	B10	3-3	3-3
P14	1	B11	4-3	4-3
P15	2	B12	5-3	5-3
P16	DOLBY	B13	1-4	1-4
P17	DIGITAL	B14	2-4	2-4
P18	PRO LOGIC	B15	3-4	3-4
P19	ENTERTAINMENT	B16	4-4	4-4

	16G	15G	14G	13G~1G
P20	□ (PS)	B17	5-4	5-4
P21	PS	P18	1-5	1-5
P22	□ (PTY)	B19	2-5	2-5
P23	PTY	► PHONO	3-5	3-5
P24	□ (RT)	► CD	4-5	4-5
P25	RT	► TUNER	5-5	5-5
P26	□ (CT)	► CD-R	1-6	1-6
P27	CT	► MD/TAPE	2-6	2-6
P28	PTY HOLD	► DVD	3-6	3-6
P29	EON	CABLE ◄	4-6	4-6
P30	STEREO	D-TV/LD ◄	5-6	5-6
P31	AUTO	CBL/SAT ◄	1-7	1-7
P32	NEWS	VCR 1 ◄	2-7	2-7
P33	INFO	VCR2/DVR ◄	3-7	3-7
P34	AFFAIRS	V-AUX ◄	4-7	4-7
P35	SPORT	S1	5-7	5-7
P36	MEMORY	S2	dB	–
P37	TUNED	S3	ms	–

■ IC DATA

IC501 : YSS928
PHONO EQ





IC501 : YSS928

Pin Description

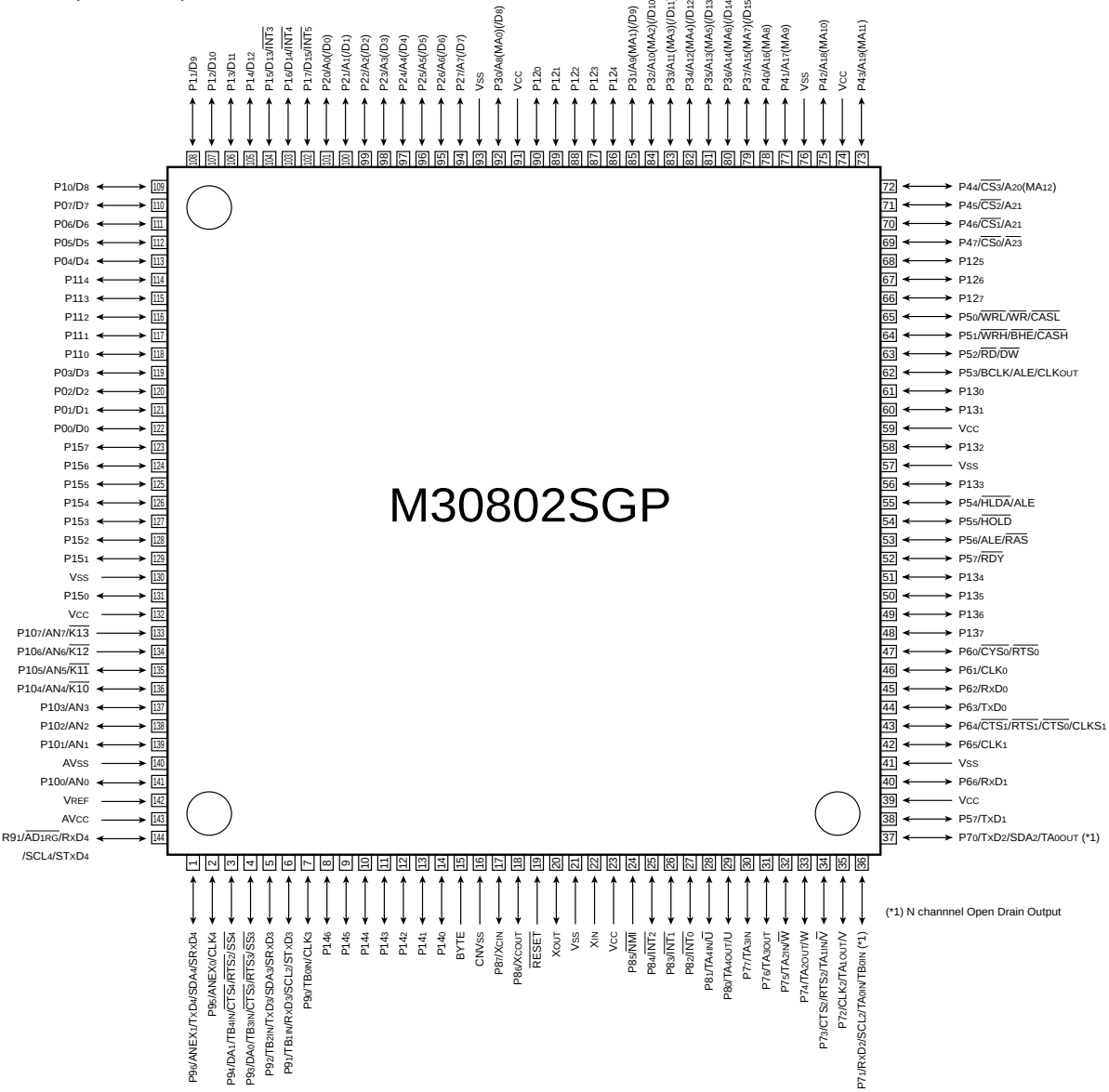
No.	Name	I/O	Function
1	XO	O	Crystal oscillator connection terminal
2	XI	I	Crystal oscillator connection terminal (24.576 MHz)
3	SELI1	I+	Built-in selector input 1
4	SELI0	I+	Built-in selector input 0
5	SELOA	O+	Built-in selector A output
6	SELOB	O+	Built-in selector B output
7	TESTMS	I+	Test terminal Unconnected
8	TESTXEN	I+	Test terminal Unconnected
9	IPORT0	I+	General purpose input terminal
10	IPORT1	I+	General purpose input terminal
11	IPORT2	I+	General purpose input terminal
12	IPORT3	I+	General purpose input terminal
13	IPORT4	I+	General purpose input terminal
14	DDIN0	Is	DIR: Digital audio interface data input terminal 0
15	DDIN1	Is	DIR: Digital audio interface data input terminal 1 / general purpose input terminal
16	DDIN2	Is	DIR: Digital audio interface data input terminal 2 / general purpose input terminal
17	DDIN3	Is	DIR: Digital audio interface data input terminal 3 / general purpose input terminal
18	VSS	–	GND
19	CPO	A	PLL filter connection terminal
20	AVDD	–	+3.3V power supply (for DIR block)
21	DIRPCO	A	DIR: PLL filter connection terminal
22	DIRPRO	A	DIR: PLL filter connection terminal
23	AVSS	–	GND (for DIR block)
24	TESTBRK	I+	Test terminal Unconnected
25	TESTR1	I+	PLL initialize signal input terminal for DSP
26	TESTR2	I+	Test terminal Unconnected
27	VDD1	–	+3.3V power supply (for terminal block)
28	SDWCKI0	I+	Word clock input terminal for SDIA, SDOA, SDIB, SDOB interfaces
29	SDBCKI0	I+	Word clock input terminal for SDIA, SDOA, SDIB, SDOB interfaces
30	/SDBCKO	O	Inverted clock output terminal for inverted clock of DIRBCK or SDBCKI0
31	IPORT8	I+	IPINT compatible general purpose input terminal
32	IPORT9	I+	IPINT compatible general purpose input terminal
33	IPORT10	I+	IPINT compatible general purpose input terminal
34	IPORT11	I+	IPINT compatible general purpose input terminal
35	SDIA	I	bitstream or PCM data input terminal to MainDSP
36	SDOA2	O	Output terminal for PCM from MainDSP (C, LFE output)
37	SDOA1	O	Output terminal for PCM from MainDSP (LS, RS output)
38	SDOA0	O	Output terminal for PCM from MainDSP (L, R output)
39	SDIB3	I+	Input terminal 3 for PCM to SubDSP
40	SDIB2	I+	Input terminal 2 for PCM to SubDSP
41	SDIB1	I+	Input terminal 1 for PCM to SubDSP
42	SDIB0	I+	Input terminal 0 for PCM to SubDSP
43	VSS	–	GND
44	VDD2	–	+2.5V power supply (for internal circuit)
45	IPORT12	I+	IPIN compatible general purpose input terminal
46	IPORT13	I+	IPIN compatible general purpose input terminal
47	IPORT14	I+	IPIN compatible general purpose input terminal
48	DIRSDO	O	bitstream or PCM data output terminal from DIR
49	DIRWCK	O	DIR: Serial data word clock (fs) output terminal
50	DIRBCK	O	DIR: Serial data bit clock (64fs) output terminal
51	DIRMCK	O	DIR: Serial data master clock (256fs or 128fs) output terminal
52	ERR/BS	O	DIR: Data error detect / block start output terminal
53	SYNC/U	O	DIR: Serial data synchronous timing / user data output terminal
54	FS128/C	O	DIR: Serial data master clock 128fs / channel status output terminal
55	DBL/V	O	DIR: Double rate lock detect / parity flag output terminal
56	SDWCKI1	I+	Word clock input terminal for SDIB, SDOB interface
57	SDBCKI1	I+	Bit clock input terminal for SDIB, SDOB interface
58	VSS	–	GND
59	SDOB3	O	Output terminal for PCM from SubDSP
60	SDOB2	O	Output terminal for PCM from SubDSP
61	SDOB1	O	Output terminal for PCM from SubDSP
62	SDOB0	O	Output terminal for PCM from SubDSP
63	VDD1	–	+3.3V power supply (for terminal block)
64	ZEROBF3R	O+	SDOB3 Rch zero flag output terminal
65	ZEROBF3L	O+	SDOB3 Lch zero flag output terminal
66	ZEROBF2R	O+	SDOB2 Rch zero flag output terminal
67	ZEROBF2L	O+	SDOB2 Lch zero flag output terminal
68	OPORT0	O	General purpose output terminal
69	OPORT1	O	General purpose output terminal
70	OPORT2	O	General purpose output terminal
71	OPORT3	O	General purpose output terminal
72	OPORT4	O	General purpose output terminal
73	OPORT5	O	General purpose output terminal
74	OPORT6	O	General purpose output terminal
75	OPORT7	O	General purpose output terminal

No.	Name	I/O	Function
76	VSS	–	GND
77	VDD2	–	+2.5V power supply (for internal circuit)
78	RAMD0	I+/O	SubDSP: Data terminal 0 for external memory
79	RAMD1	I+/O	SubDSP: Data terminal 1 for external memory
80	RAMD2	I+/O	SubDSP: Data terminal 2 for external memory
81	RAMD3	I+/O	SubDSP: Data terminal 3 for external memory
82	ZEROBF1R	O+	SDOB1 Rch zero flag output terminal
83	ZEROBF1L	O+	SDOB1 Lch zero flag output terminal
84	ZEROBF0R	O+	SDOB0 Rch zero flag output terminal
85	ZEROBF0L	O+	SDOB0 Lch zero flag output terminal
86	RAMD4	I+/O	SubDSP: Data terminal 4 for external memory
87	RAMD5	I+/O	SubDSP: Data terminal 5 for external memory
88	RAMD6	I+/O	SubDSP: Data terminal 6 for external memory
89	RAMD7	I+/O	SubDSP: Data terminal 7 for external memory
90	VSS	–	GND
91	VDD1	–	+3.3V power supply (for terminal block)
92	RAMD8	I+/O	SubDSP: Data terminal 8 for external memory
93	RAMD9	I+/O	SubDSP: Data terminal 9 for external memory
94	RAMD10	I+/O	SubDSP: Data terminal 10 for external memory
95	RAMD11	I+/O	SubDSP: Data terminal 11 for external memory
96	RAMD12	I+/O	SubDSP: Data terminal 12 for external memory
97	RAMD13	I+/O	SubDSP: Data terminal 13 for external memory
98	RAMD14	I+/O	SubDSP: Data terminal 14 for external memory
99	RAMD15	I+/O	SubDSP: Data terminal 15 for external memory
100	CASN	O	SubDSP: Column address strobe output terminal for external DRAM
101	RAMWEN	O	SubDSP: Write enable output terminal for external memory
102	RAMOEN	O	SubDSP: Output enable output terminal for external memory
103	RASN	O	SubDSP: Low address strobe output terminal for external DRAM
104	VSS	–	GND
105	VDD1	–	+3.3V power supply (for terminal block)
106	RAMA8	O	SubDSP: Address terminal 8 for external memory
107	RAMA7	O	SubDSP: Address terminal 7 for external memory
108	RAMA0	O	SubDSP: Address terminal 0 for external memory
109	RAMA6	O	SubDSP: Address terminal 6 for external memory
110	RAMA1	O	SubDSP: Address terminal 1 for external memory
111	RAMA5	O	SubDSP: Address terminal 5 for external memory
112	RAMA2	O	SubDSP: Address terminal 2 for external memory
113	SELI13	I+	Built-in selector input 13
114	SELI12	I+	Built-in selector input 12
115	SELI11	I+	Built-in selector input 11
116	SELI10	I+	Built-in selector input 10
117	SELI9	I+	Built-in selector input 9
118	RAMA4	O	SubDSP: Address terminal 4 for external memory
119	RAMA3	O	SubDSP: Address terminal 3 for external memory
120	RAMA9	O	SubDSP: Address terminal 9 for external memory
121	RAMA10	O	SubDSP: Address terminal 10 for external memory
122	RAMA11	O	SubDSP: Address terminal 11 for external memory
123	VSS	–	GND
124	VDD2	–	+2.5V power supply (for internal circuit)
125	SELI8	I+	Built-in selector input 8
126	SELI7	I+	Built-in selector input 7
127	SELI6	I+	Built-in selector input 6
128	SELI5	I+	Built-in selector input 5
129	RAMA12	O	SubDSP: Address terminal 12 for external memory
130	RAMA13	O	SubDSP: Address terminal 13 for external memory
131	RAMA14	O	SubDSP: Address terminal 14 for external memory
132	RAMA15	O	SubDSP: Address terminal 15 for external memory
133	RAMA16	O	SubDSP: Address terminal 16 for external memory
134	RAMA17	O	SubDSP: Address terminal 17 for external memory
135	OVFB/END	O	SubDSP: Overflow / program end detect terminal
136	ZEROFLG	O	MainDSP: Zero flag output terminal
137	VSS	–	GND
138	NONPCM	O	Main DSP: non-PCM data detect terminal
139	DTSDATA	O	MainDSP: DTS data detect terminal
140	AC3DATA	O	MainDSP: AC-3 data detect terminal
141	MUTE	O	MainDSP: Auto mute detect terminal
142	KARAOKE	O	MainDSP: AC-3 Karaoke data detect terminal
143	VDD1	–	+3.3V power supply (for terminal block)
144	SURENC	O	MainDSP: AC-3 2/0 mode Dolby Surround Encode input detect terminal
145	CRC	O	MainDSP: AC-3 CRC error detect terminal
146	/LOCK	O	DIR: PLL lock detect terminal
147	DIRINT	O	DIR: Interrupt output terminal
148	/CS	Is	Microprocessor interface chip select input terminal
149	SO	Ot	Microprocessor interface data output terminal
150	SI	Is	Microprocessor interface data input terminal
151	SCK	Is	Microprocessor interface clock input terminal
152	/IC	Is	Initial clear input terminal
153	IPINT	O+	Output terminal for interrupt by IPORT8-14

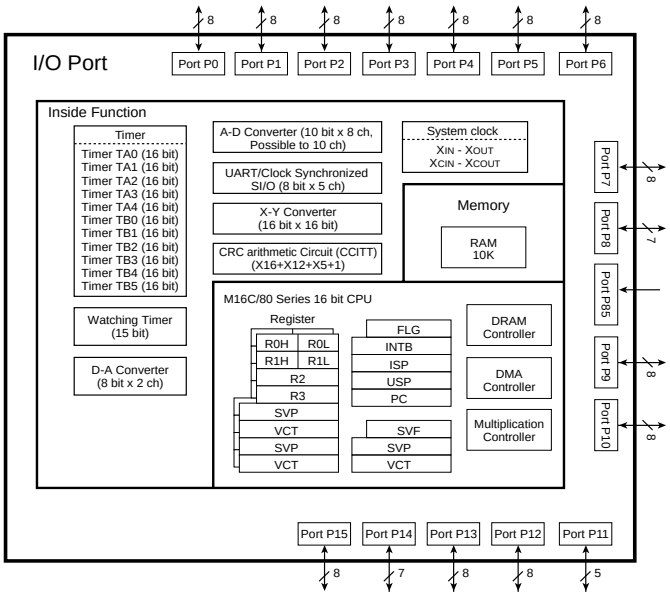
No.	Name	I/O	Function
154	SELI4	I+	Built-in selector input 4
155	VSS	–	GND
156	SELI3	I+	Built-in selector input 3
157	SELI2	I+	Built-in selector input 2
158	TESTXI	I	Test terminal Must be connected with VSS.
159	TESTXO	O	Test terminal Unconnected.
160	VDD2	–	+2.5V power supply (for internal circuit)

Is: Schmidt trigger input terminal
I+: Input terminal with pulled-up resistor
O: Digital output terminal
Ot: 3-state digital output terminal
A: Analog terminal

IC526 : M30802SGP
16bit μ-COM (Main CPU)



(*1) N channnel Open Drain Output



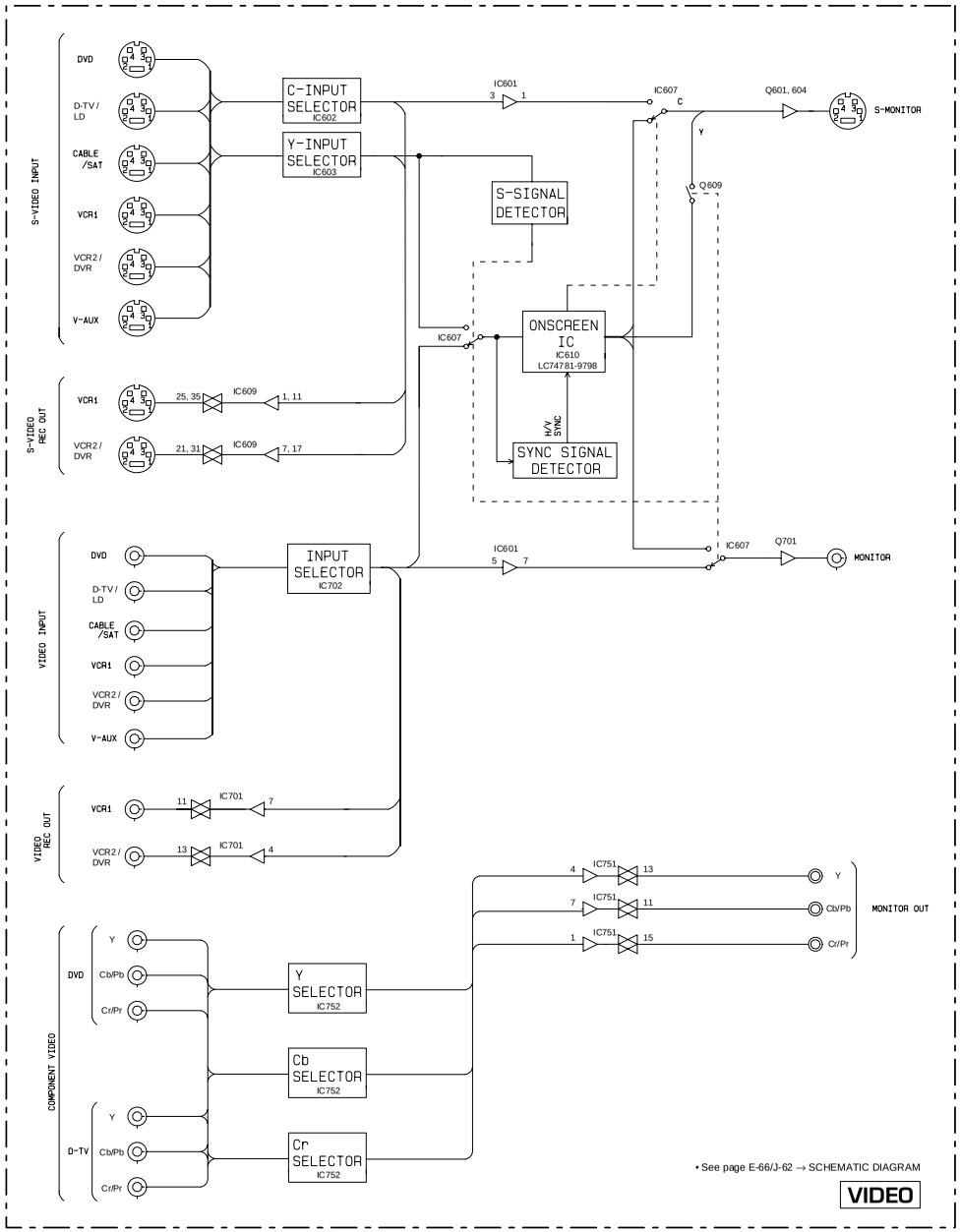
IC526 : M30802SGP
Pin Description

No.	Port No.	Function name	I/O	Detail of function	ON	OFF	BU
1	P96	TXDR	O	232C transmission data / Yokokawa data transmission	O	OL	OL
2	P95	RTS	I/O	232C RTS output / Yokokawa clock input	I/O	OL	OL
3	P94	CTS	I	232C CTS input	I	I	OL
4	P93	FAN	I	Fan control	I	I	OL
5	P92	SDTN	O	None audio serial transmission data (necessary port)	SO	OL	OL
6	P91	RXRDS	I	RDS received / Frequency switch (R version)	SI	I	OL
7	P90	SCKN	SCK	None audio serial clock	SCK	OL	OL
8	P146	E/I	O	Outside / inside synchronized output	O	OL	OL
9	P145	CEBU	O	BU2092CE or ZONE2	O	OL	OL
10	P144	/FLR	O	FL IC reset	O	OL	OL
11	P143	CEM0	O	FL1 enable	O	OL	OL
12	P142	CEM1	O	FL2 enable	O	OL	OL
13	P141	RDSE	O	RDS enable or RDS	O	OL	OL
14	P140	CES	O	Onscreen enable output / N/P format	O	OL	OL
15	BYTE	BYTE	VSS	Vss at 16 bit data	Vss	Vss	Vss
16	CNVss	CNVss	VCC	Vcc at microprocessor mode	Vcc	Vcc	Vcc
17	P87	MODEL	I	Model distinction	I	I	OL
18	P86	BOOT	I	Boot terminal for Yokokawa tool	I	I	OL
19	RESET	RESET	I	Reset	–	–	–
20	XOUT	XOUT	O	Oscillate output	–	–	–
21	VSS	VSS	VSS	Microcomputer ground	–	–	–
22	XIN	XIN	I	Oscillate input	–	–	–
23	VCC	VCC	I	Microcomputer power supply +5V	–	–	–
24	P85	NMI	I	Pullup by Vcc / 232C boot	–	–	–
25	P84	REM1	I	Remote control pulse input and LO edge interrupted	I	I	OL
26	P83	PEW	I	Power switch and HI edge interrupted	I	I	OL
27	P82	PDET	I	Power detect and LO edge interrupted	I	I	I
28	P81	VSY	I	Vertical synchronized detect	I	I	OL
29	P80	/ICD	O	IC YSS928 / DA / AD / CODEC / DEM	O	OL	OL
30	P77	RXDR	I	232C receive data (connect to pin 29)	I	I	OL
31	P76	/DMT	O	Digital full mute	O	OL	OL
32	P75	INT928	I	YSS928 IPINT / MUTE / DIR	I	I	OL
33	P74				O	OL	OL
34	P73	CEP	O	PLL IC enable	O	OL	OL
35	P72	SCKP	O	PLL IC clock	O	OL	OL
36	P71	RDTP	I	PLL IC receive data	I	I	OL
37	P70	SDTP	O	PLL IC transmission data (necessary PU)	O	OL	OL
38	P57	SDM	O	YSS928 transmission data	SO	OL	OL
39	VCC	VCC	VCC	Microcomputer power supply +5V			
40	P66	SDD	I	YSS928 receive data	SI	I	OL
41	VSS	VSS	VSS	Microcomputer ground			
42	P65	SCK	SCK	YSS928 clock	SCK	OL	OL
43	P64	/CSA	O	YSS928 CE	O	OL	OL
44	P63	CEC	O	CS3310 serial transmission data	SO	OL	OL
45	P62	CEC	O	CS3310 enable	O	OL	OL
46	P61	SCKC	SCK	CS3310 serial clock	SCK	OL	OL
47	P60	CSV	O	CS3310 power supply control	O	OL	OL
48	P137	/CSM	O	CS3310 reset	O	OL	OL
49	P136	VRB	I	Volume rotary B	I	I	OL
50	P135	VRA	I	Volume rotary A	I	I	OL
51	P134	PRI	I	Current protection	I	I	I
52	P57						HI
53	P56						HI
54	P55						HI
55	P54						HI
56	P133	/BEC	O	Bus extension control	O	OL	OL
57	VSS	VSS	VSS	Microcomputer ground			
58	P132	/Z2MT	O	Zone 2 mute	O	OL	OL
59	VCC	VCC	VCC	Microcomputer power supply +5V			
60	P131	/HPMT	O	Headphone mute	O	OL	OL
61	P130	/FMTF	O	Full mute FL / FR / MAIN -3dB	O	OL	OL
62	P53						HI
63	P52			OE			HI
64	P51						HI
65	P50			WE			HI
66	P127	/FMTS	O	Full mute SWL / SWR / SW MONO	O	OL	OL
67	P126	/FMTC	O	Full mute CENTER	O	OL	OL
68	P125	/FMTM	O	Full mute MAIN L / R, RL / RC / RR"	O	OL	OL
69	P47						Just before
70	P46						Just before
71	P45						Just before
72	P44						Just before
73	P43						Just before
74	VCC	VCC	VCC	Microcomputer power supply +5V			
75	P42						Just before

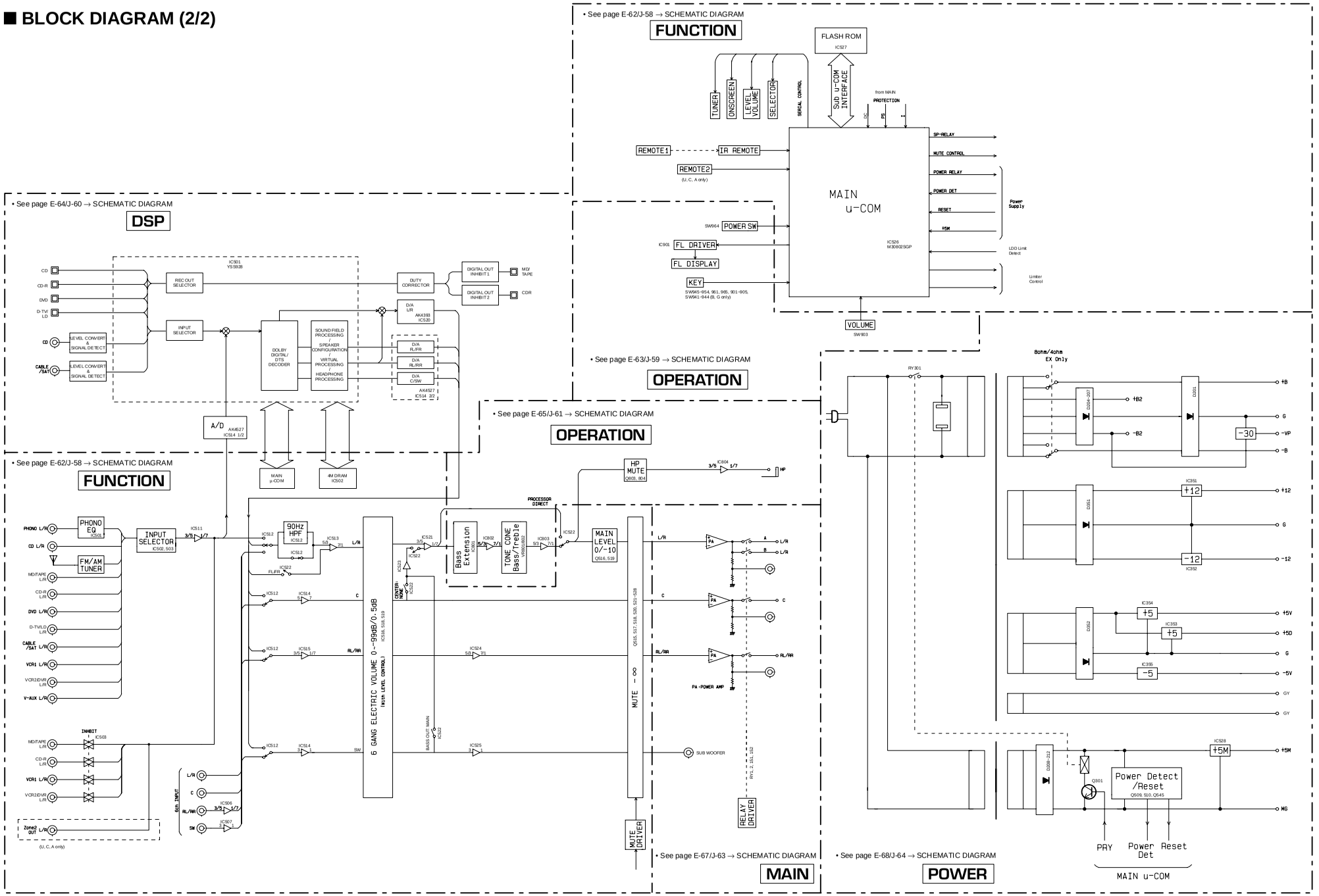
No.	Port No.	Function name	I/O	Detail of function	ON	OFF	BU
76	VSS	VSS	VSS	Microcomputer ground			
77	P41						Just before
78	P40						Just before
79	P37						Just before
80	P36						Just before
81	P35						Just before
82	P34						Just before
83	P33						Just before
84	P32						Just before
85	P31						Just before
86	P124	SCKA	O	Clock output for audio IC	O	OL	OL
87	P123	SDTA	O	Data output for audio IC	O	OL	OL
88	P122	CEL	O	Enable output for audio IC of sanyo	O	OL	OL
89	P121	RIMA	O	Power rimitter A	O	OL	OL
90	P120	RIMB	O	Power rimitter B	O	OL	OL
91	VCC	VCC	VCC	Microcomputer power supply +5V			
92	P30						Just before
93	VSS	VSS	VSS	Microcomputer ground			
94	P27						Just before
95	P26						Just before
96	P25						Just before
97	P24						Just before
98	P23						Just before
99	P22						Just before
100	P21						Just before
101	P20						Just before
102	P17						Just before
103	P16						Just before
104	P15						Just before
105	P14						Just before
106	P13						Just before
107	P12						Just before
108	P11						Just before
109	P10						Just before
110	P07						Just before
111	P06						Just before
112	P05						Just before
113	P04						Just before
114	P114	/MLV	O	Main level	O	OL	OL
115	P113	PRY	O	Power relay	O	OL	OL
116	P112	SPE	O	Speaker relay at effect	O	OL	OL
117	P111	SPB	O	Speaker relay at main B	O	OL	OL
118	P110	SPA	O	Speaker relay at main A	O	OL	OL
119	P03						Just before
120	P02						Just before
121	P01						Just before
122	P00						Just before
123	P157	TUN0	I	Tuner step 0	I	I	OL
124	P156	TUN1	I	Tuner step 1	I	I	OL
125	P155	ISA/BSW	I	Program rotary A / BASS EXT switch	I	I	OL
126	P154	ISB/PSW	I	Program rotary B / PR.DIRECT switch	I	I	OL
127	P153	/HP	I	Headphone detect	I	I	OL
128	P152	TMT	O	Tuner mute	O	OL	OL
129	P151	/TUNED	I	Tuner meter	I	I	OL
130	VSS	VSS	VSS	Microcomputer ground			
131	P150	/ST	I	Tuner stereo	I	I	OL
132	VCC	VCC	VCC	Microcomputer power supply +5V			
133	P107	RMV	I	Power rimitter for model distinction	I	I	I
134	P106	REC	I	REC OUT selector	I	I	I
135	P105	PREMT	I	Power rimitter detect	I	I	I
136	P104	ADKEY1	I	Key tact switch 1	I	I	I
137	P103	ADKEY0	I	Key tact switch 0	I	I	I
138	P102	AN2	I	Temperature detect	I	I	I
139	P101	AN1	I	Power amplifier DC protection	I	I	I
140	AVSS	VSS	VSS	AD ground	VSS	VSS	VSS
141	P100	AN0	I	Power supply protection	I	I	I
142	VREF	VREF	VCC	AD reference	VCC	VCC	VCC
143	AVCC	AVCC	VCC	AD power supply	VCC	VCC	VCC
144	P91	RXDR	I	232C receive data / Yokokawa data receive	I	I	OL

Voltage	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5
KEY0	PRESET ▶	PRESET ◀	PRESET/EDIT	FM/AM	MEMORY	TUNING MODE	RDS MODE	EON	PTY SEEK MODE	PTY SEEK START
KEY1	6CH INPUT	INPUT ▶	INPUT ◀	INPUT MODE	SPA	SPB	EFFECT	PROGRAM ▶	PROGRAM ◀	A/B/C/D/E

■ BLOCK DIAGRAM (1/2)



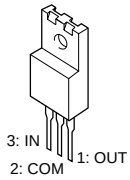
■ BLOCK DIAGRAM (2/2)



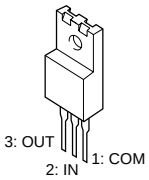
■ PIN CONNECTION DIAGRAM

• ICs

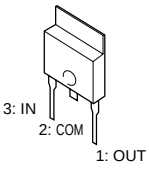
AN78N05
NJM7805FA
NJM7812FA
NJM78M05FA



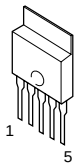
NJM79M05FA
NJM79M12FA



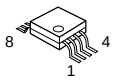
µPC29M33T-E1



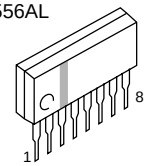
PQ025EZ5MZP



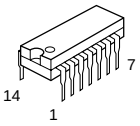
NJM2068MD
NJM2904M
TK15420M
µPC4570G2



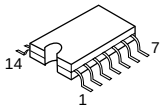
NJM2068LD
NJM4556AL



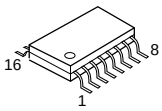
TC4066BP



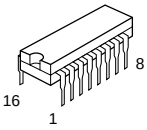
TC74HC00AF
TC74HCU04AF
TC74VHCT08AF



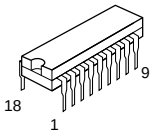
CS3310-KS
LA7104M
LA7108M



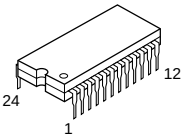
TC74HC4051AP
TC74HC4053AP
TC74HCU04AP



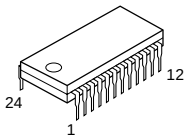
BU2092



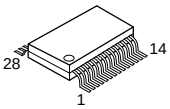
LC72722



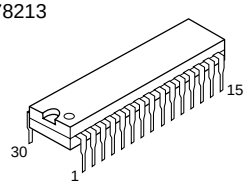
LC74781-9798



AK4393-VF-E2



LC78211
LC78213



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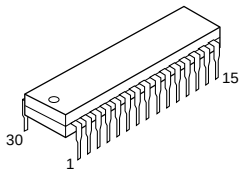
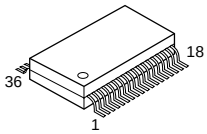
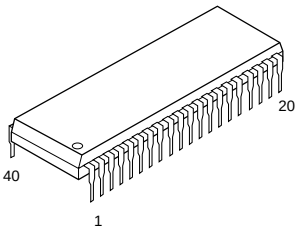


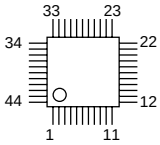
LA7109



MSM514260C-60JS

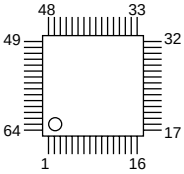


AK4527VQ

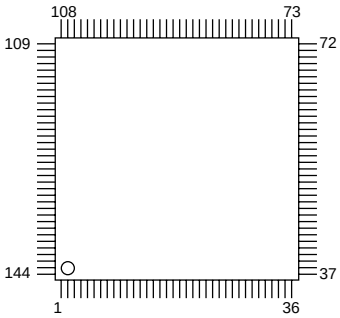


MBM29F400BC-70

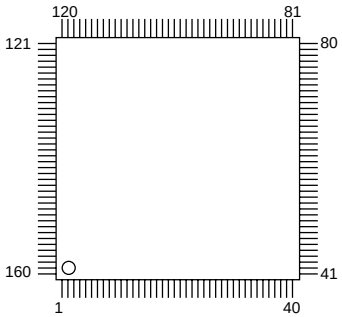
LC75710NE
LC75712E



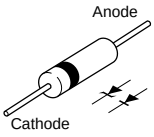
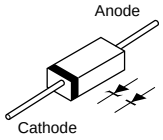
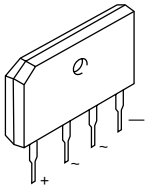
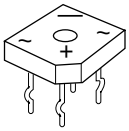
M30802SGP



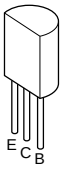
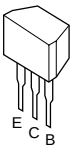
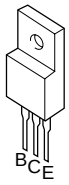
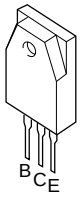
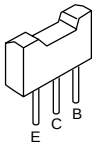
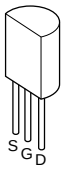
YSS928



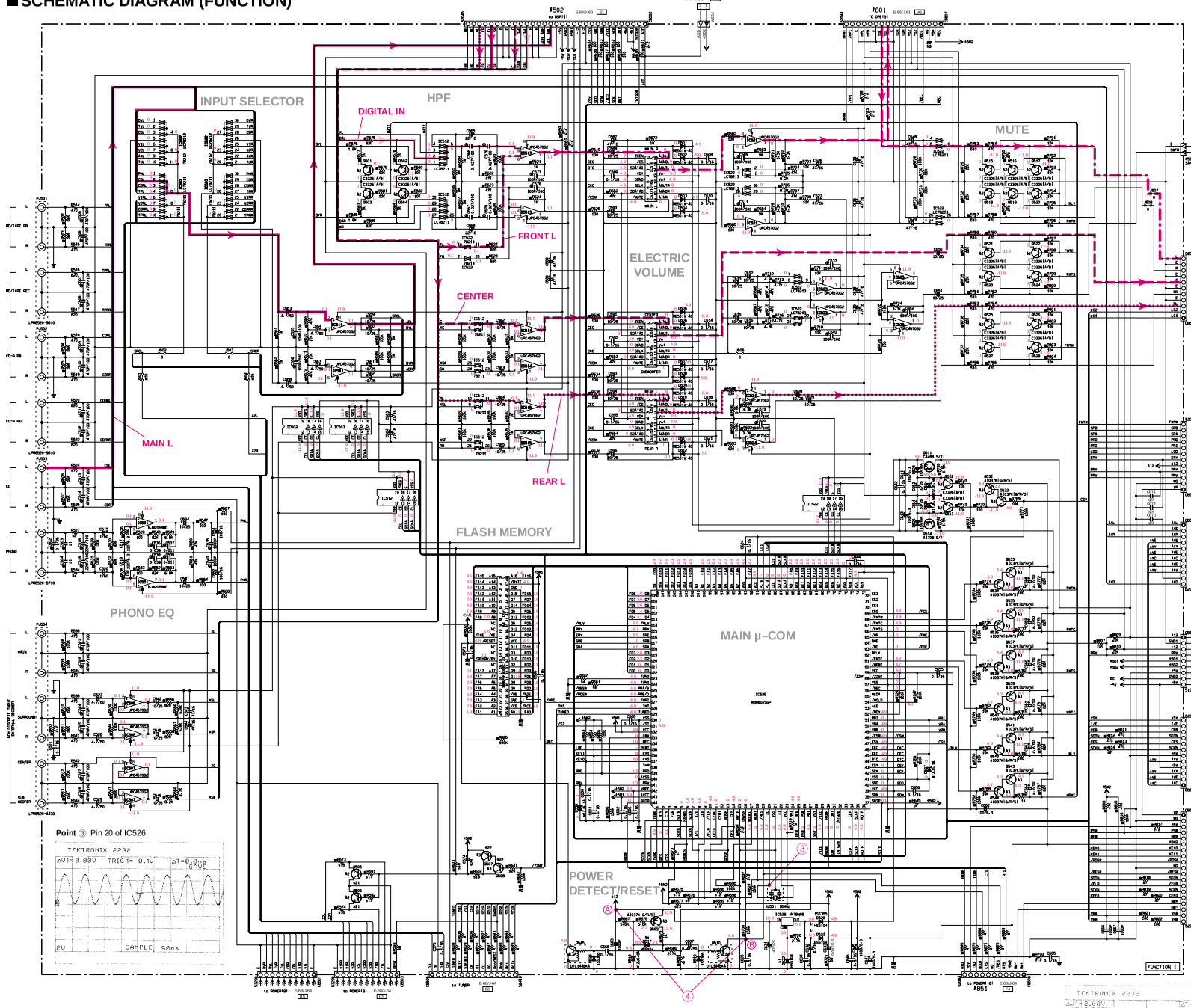
• Diodes

1N4002S 1SR139 1SS133 1SS270A 1T2 HZS7B2TD MTZJ4.7C MTZJ5.1A MTZJ5.6B MTZJ6.8A MTZJ9.1A MTZJ11B MTZJ12A MTZJ12C MTZJ16A MTZJ30.0A 	1SS355 RB501V-40 
D2SBA20 	S5VB20 

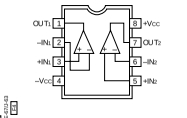
• Transistors

2SA893A 2SA1015 2SB949 2SC535 2SC1815 2SC1890A 2SC2240 2SC2878 	2SA933S 2SC1740S 2SD1915F 2SD1991A DTA144ES DTC114ES DTC144ES 	2SB1565 2SD2396 	2SA1492 2SC3856 
2SA1037 2SC3326 DTA144EK DTC144EKA 	2SA1708 2SA1770 2SC4488 2SC4614 	2SK246 	

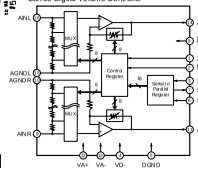
■SCHEMATIC DIAGRAM (FUNCTION)



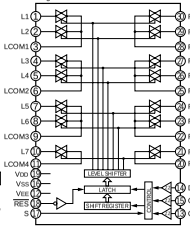
IC501: NJM2068MD
IC506, IC507, IC511, IC513–IC515: µPC4570G2
IC521, IC523–IC525: µPC4570G2
Dual OP-Amp



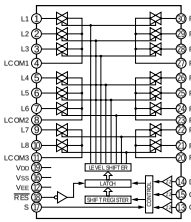
IC516, IC518, IC519: CS3310-KS
Stereo Digital Volume Controller



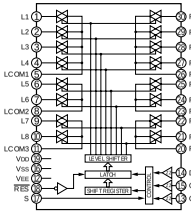
IC522: LC78213
Analog Function Switch



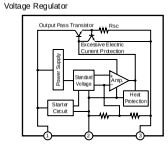
IC502: LC78212
Analog Function Switch



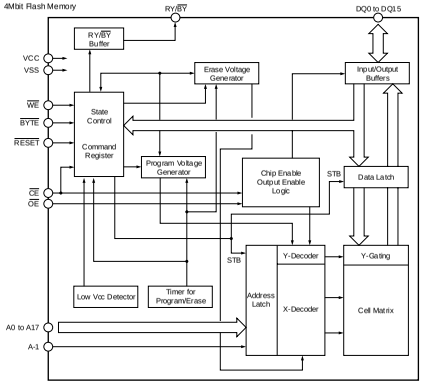
IC503, IC512: LC78211
Analog Function Switch



IC528: AN78N05
Voltage Regulator

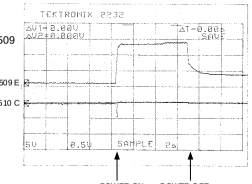


IC527: MBM29F400BC-70
4Mbit Flash Memory



Point ③ Pin 20 of IC526

Point ④ emitter of Q509 and collector of Q510



POWER ON (Connect the power cord)
POWER OFF (Disconnect the power cord)

RESISTOR	
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
☑	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
☒	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
◎	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR	
REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
◎	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
◎	MICA CAPACITOR
◉	POLYPROPYLENE FILM CAPACITOR
◉	SEMICONDUCTIVE CERAMIC CAPACITOR
◉	POLYPHENYLENE SULFIDE FILM CAPACITOR

NOTICE (model)
(J)..... JAPANESE
(U)..... U.S.A.
(C)..... CANADIAN
(R)..... GENERAL
(A)..... AUSTRALIAN
(B)..... BRITISH
(G)..... EUROPEAN
(T)..... CHINA
(L)..... SINGAPORE

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
!	0611-526-501-522	2SD1133 2SD176 2SD1664
!	0607-506-512-515-518-526	2SC3326(A/B) 2SC3326(R)
!	0607-509-531-544	2SA1037K(S/R/S) 2SB709A(R/S/S)
!		
!		

★ All voltage are measured with a 10M /V DC electric volt meter.
★ Components having special characteristics are marked ! and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

● 電圧は、内部抵抗10MΩの電圧計で測定したものです。
● ! 印のある部品は、安全性確保部品を示しています。部品の交換が必要な場合、パーツリストに記載されている部品を使用してください。
● 本回路図は標準回路図です。改良のため予告なく変更することがあります。

s	Circuit No.	J	In-C	In-T	Ant.	Ant.	Comment
1	C503-514	x	x	x	220V/330 UPW2G2	220V/330 UPW2G2	
2	R627-634	47 RF-SS47	47 RF-SS47	47 RF-SS47	2.2k RF-SS222	2.2k RF-SS222	
3							
4	R660	1k RD39B33	x	x	5k RD39B16	5k RD39B16	
5							
6	R661	1k RD39B33	x	x	5k RD39B16	x	
7	R673	x	x	100k RD39B10	x	x	
8	R563	x	x	47 RD39447	x	x	
9	R676	x	x	x	100k RD39B10	100k RD39B10	
10	R698	100k RD39B33	100k RD39B33	100k RD39B10	x	x	
11	R675	x	x	100k RD39B10	100k RD39B10	100k RD39B10	
12	R696	100k RD39B10	100k RD39B10	100k RD39B10	x	x	
13	R677	x	100k RD39B10	100k RD39B10	x	x	
14	R699	100k RD39B10	x	100k RD39B10	x	100k RD39B10	
15	J501-504	x	0 RD39000	x	0 RD39000	x	
16	R673-574	x	2k RD39B10	x	1k RD39B10	x	
17	R561-592	x	3.3k RD39B33	x	1k RD39B10	x	
18	R563	x	100k RD39B10	x	100k RD39B10	x	
19	R564	x	100 RD39B10	x	100 RD39B10	x	
20	R641	x	100k RD39B10	x	100k RD39B10	x	
21	D505-506	x	C3326(A/B) D3B33	x	C3326(A/B) D3B33	x	
22	D507-508	x	1037K(S/R/S) 1037K	x	1037K(S/R/S) 1037K	x	
23	C574	x	2.2/50 UP1H2R2	x	2.2/50 UP1H2R2	x	
24	C670-672	x	0.1/25 UP1E104	x	x	x	
25							
26							

x: NOT USED
O: USED / APPLIC ABLE

■SCHEMATIC DIAGRAM (OPERATION 2/2)

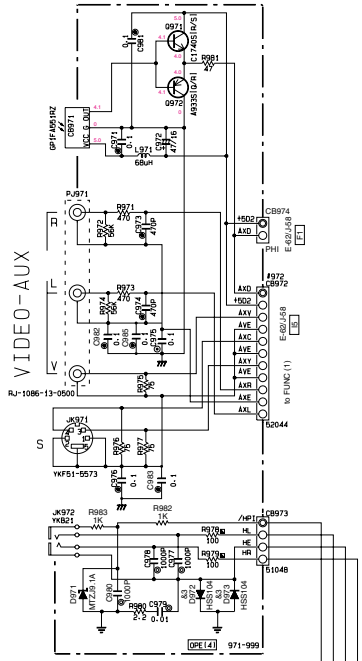
RESISTOR

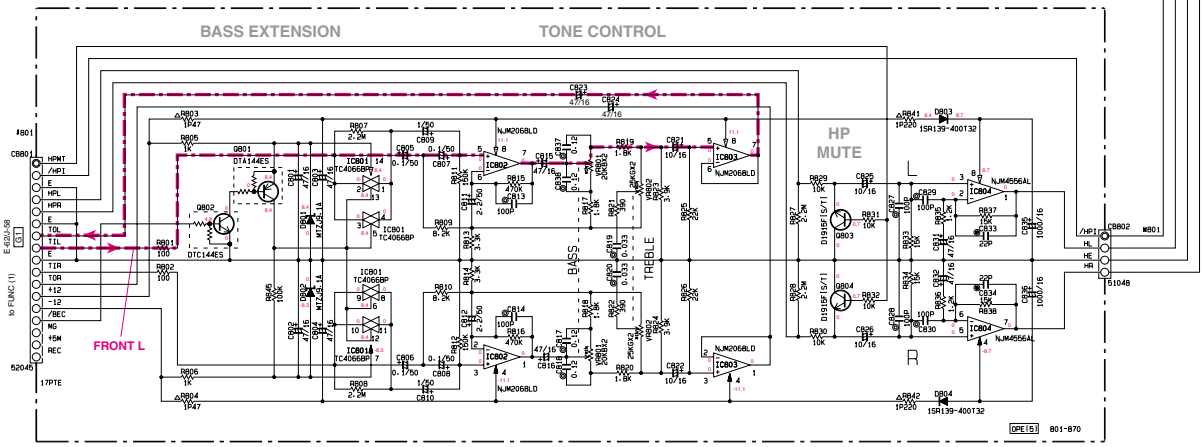
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
☑	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
☒	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR

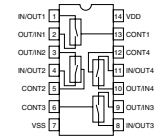
REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	2
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	1
◉	CERAMIC TUBULAR CAPACITOR	
◎	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
Ⓘ	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
◉	SEMICONDUCTIVE CERAMIC CAPACITOR	
Ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR	

NOTICE (model)
(J)····· JAPANESE
(U)····· U.S.A
(C)····· CANADIAN
(R)····· GENERAL
(A)····· AUSTRALIAN
(B)····· BRITISH
(G)····· EUROPEAN
(T)····· CHINA
(L)····· SINGAPORE

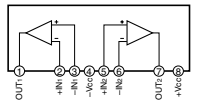




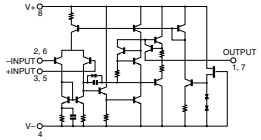
IC801: TC4066BP
Quad Analog Switch/Multiplexer



IC802, IC803: NJM2068LD
Dual OP-Amp



IC804: NJM4556AL
Dual OP-Amp



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★ Schematic diagram is subject to change without notice.

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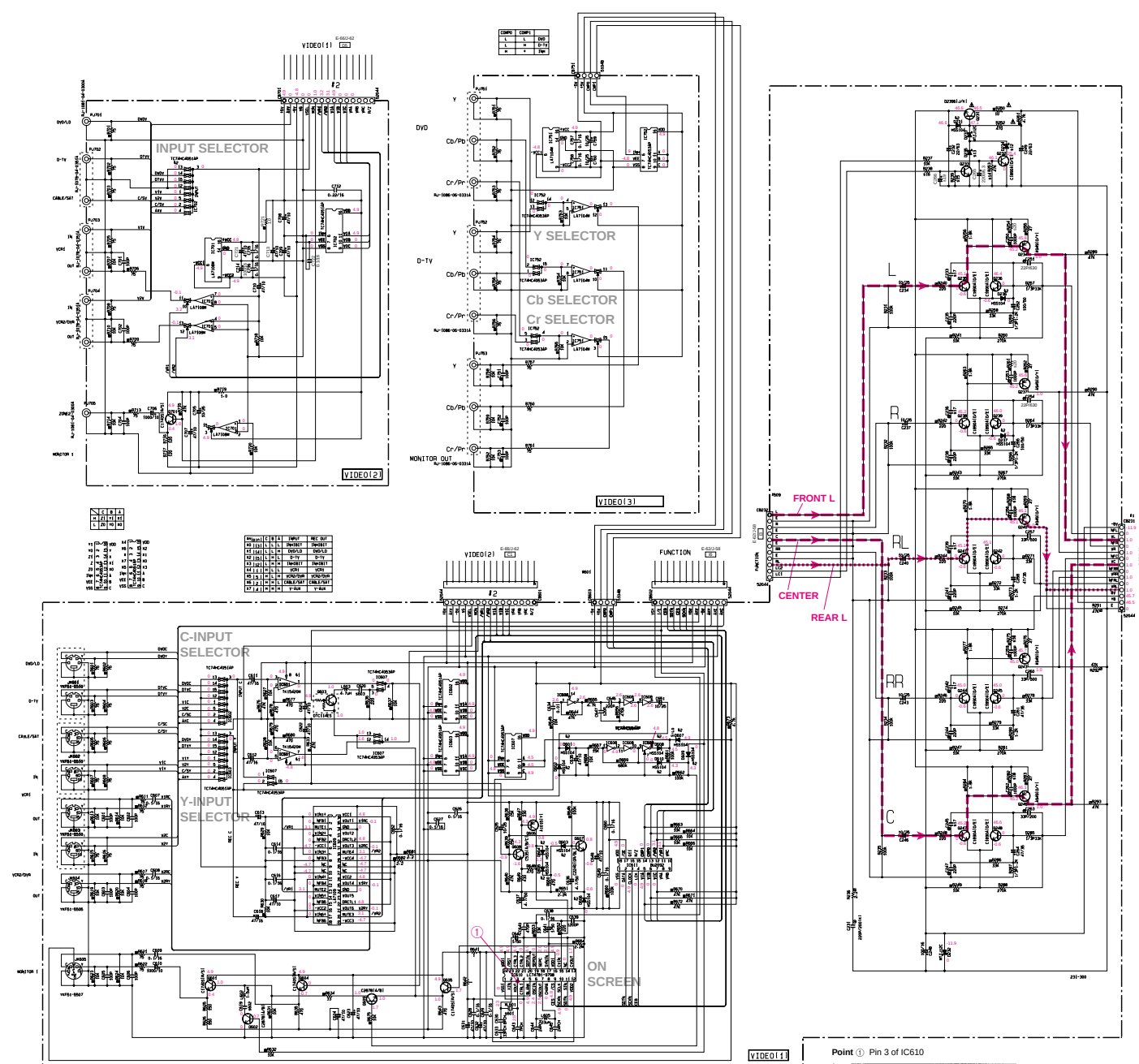
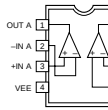
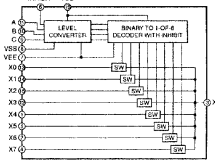
■SCHEMATIC DIAGRAM (VIDEO)



IC601: TK15420M
Video Amp

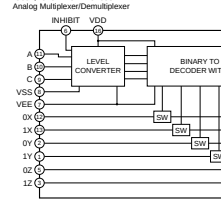


IC602, IC603, IC702: TC74HC4051AP
Analog Multiplexer/Demultiplexer



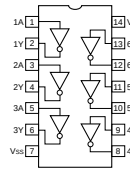
INPUT STATES				"ON" CHANNEL (S)
INHIBIT	C	B	A	
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	X	X	X	NONE

IC607, IC752: TC74HC4053AP
Analog Multiplexer/Demultiplexer

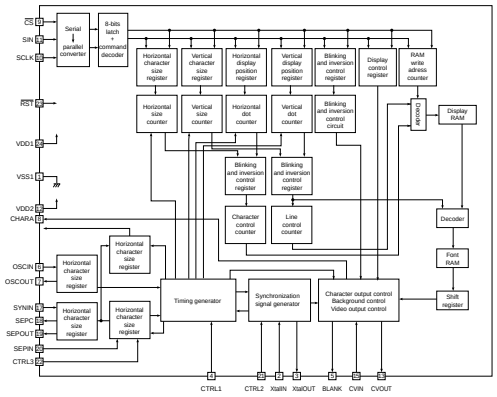


INPUT STATES				"ON" CHANNNEL (S)
INHIBIT	C	B	A	
0	0	0	0	0X, 0Y, 0Z
0	0	0	1	1X, 0Y, 0Z
0	0	1	0	0X, 1Y, 0Z
0	0	1	1	1X, 1Y, 0Z
0	1	0	0	0X, 0Y, 1Z
0	1	0	1	1X, 0Y, 1Z
0	1	1	0	0X, 1Y, 1Z
0	1	1	1	1X, 1Y, 1Z
1	X	X	X	NONE

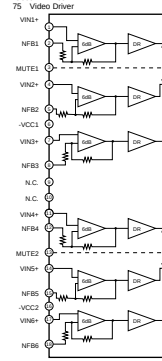
IC608: TC74HCU04AP
Hex Inverters



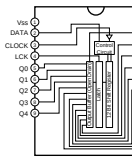
IC610: LC74781-9798
On Screen Display Controller



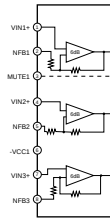
IC609: LA7109
75 Video Driver



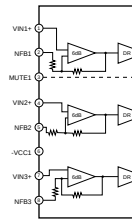
IC611: BU2092
Serial In/Parallel Out Driver



IC701: LA7108M
Video Amp



IC751: LA7104M
Video Amp

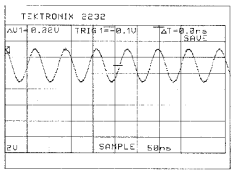


Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
▲2	IC601	TK15420M
		AD6568AR
▲2	Q232-Q236-Q237-Q601-Q602-Q603-Q604-Q605-Q606-Q607-Q608-Q609-Q610	HSS104
		HSS176
▲3		
▲4		
▲5		
▲6		
▲7		
▲8		
▲9		
▲10		
▲11		
▲12		

Mark	Parts Number	J	K	C	R,T	R,L,C,D
▲1	XL601	14.318180MHz VXS0980	14.318180MHz VXS0980	14.318180MHz VXS0980	17.734476MHz VXS0990	
▲2	C619	33pF CK0033	33pF CK0033	33pF CK0033	33pF CK0033	33pF CK0033
▲3	C620	100pF CK0039	100pF CK0039	100pF CK0039	100pF CK0039	100pF CK0039
▲4	D234	MTZJ39A VEA1940	MTZJ12A VEA1910	MTZJ12A VEA1910	MTZJ12A VEA1910	MTZJ12A VEA1910
▲5	D235	-	MTZJ6.1A VEA1910	MTZJ6.1A VEA1910	MTZJ6.1A VEA1910	MTZJ6.1A VEA1910
▲6	Q233	-	C1906A10/E1 VPB0310	C1906A10/E1 VPB0310	C1906A10/E1 VPB0310	C1906A10/E1 VPB0310
▲7	R239	-	47k ±F-RD1/4T	47k ±F-RD1/4T	47k ±F-RD1/4T	47k ±F-RD1/4T
▲8	R238	-	1M ±F-RD1/4T	1M ±F-RD1/4T	1M ±F-RD1/4T	1M ±F-RD1/4T
▲9	C213-C239-C270-C342-C343	150P VCK1056	150P VCK1056	150P VCK1056	220P VCK1057	220P VCK1057
▲10	R268, 270, 282	75Ω MCR01S	75Ω MCR01S	75Ω MCR01S	75Ω MCR01S	75Ω MCR01S
19	C266	-	2200P/L3 URS1922	2200P/L3 URS1922	2200P/L3 URS1922	2200P/L3 URS1922
20	R254, 261	1Ω MCR01S	1Ω MCR01S	1Ω MCR01S	270 MCR50J27	270 MCR50J27

Point ① Pin 3 of IC610



CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
※	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⊙	MICA CAPACITOR
◉	POLYPROPILENE FILM CAPACITOR
◉	SEMICONDUCTIVE CERAMIC CAPACITOR
◉	POLYPHENYLENE SULFIDE FILM CAPACITOR

RESISTOR

REMARKS	PARTS NAME	
NO MARK	CARBON FILM RESISTOR	(P-5)
▽	CARBON FILM RESISTOR	(P-10)
△	METAL OXIDE FILM RESISTOR	
▲	METAL FILM RESISTOR	
◎	METAL PLATE RESISTOR	
○	FUSE PROOF CARBON FILM RESISTOR	
◎	CEMENT MOLDED RESISTOR	
◉	SEMI VARIABLE RESISTOR	
■	CHIP RESISTOR	

NOTICE (model)
(J)..... JAPANESE
(U)..... U.S.A
(C)..... CANADIAN
(R)..... GENERAL
(A)..... AUSTRALIAN
(B)..... BRITISH
(G)..... EUROPEAN
(T)..... CHINA
(L)..... SINGAPORE

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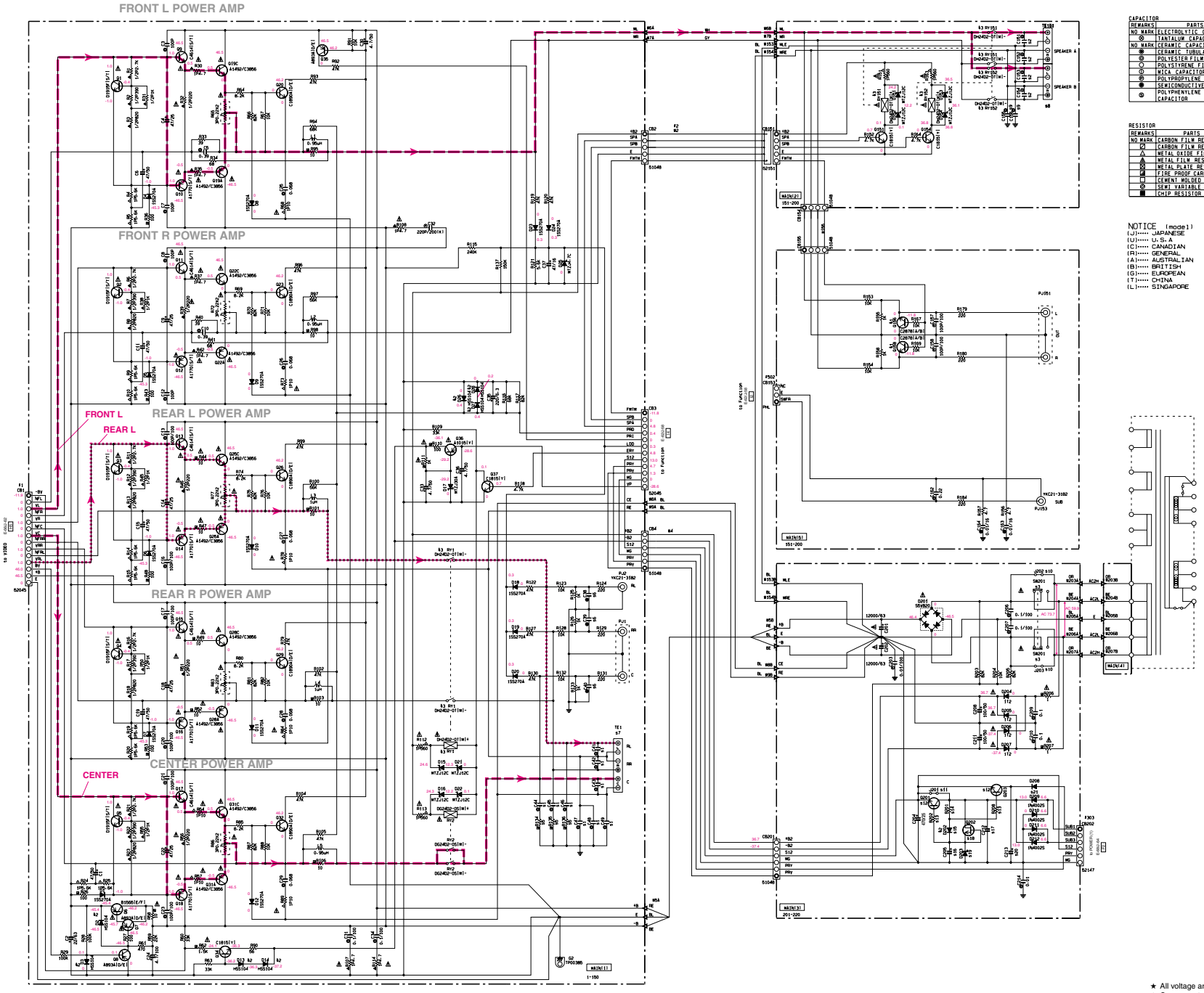
■SCHEMATIC DIAGRAM (MAIN)



CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	B
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	F
⊗	CERAMIC TUBULAR CAPACITOR	
⊗	POLYESTER FILM CAPACITOR	
⊗	POLYSTYRENE FILM CAPACITOR	
⊗	MICA CAPACITOR	
⊗	POLYPROPYLENE FILM CAPACITOR	
⊗	SEMICONDUCTIVE CERAMIC CAPACITOR	
⊗	POLYPHENYLENE SULFIDE FILM CAPACITOR	

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
☑	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

NOTICE (model)
(J)..... JAPANESE
(U)..... U.S.A
(C)..... CANADIAN
(R)..... GENERAL
(A)..... AUSTRALIAN
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(G)..... EUROPEAN
(T)..... CHINA
(L)..... SINGAPORE

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
k1	D150-158	2SC2878(A/B) 2SD1915P(S/T)
k2	D2-3-13-14-26-27-28-202	HSS104 1SS133 1SS176
k3	RY1-151-152	DH2402-01(M) DH2402-01(M)-SL

S	Circuit No.	model J	U-C	R-T	A	B-G-L
s1	C41-49	x	x	0.01 (U495410)	0.01 (U495410)	0.01 (U495410)
s2	C151-154	x	x	4700P (V71630)	4700P (V71630)	4700P (V71630)
s3	SW201	x	SL13B-0224MCS (V410420)	SL13B-0224MCS (V410420)	SL13B-0224MCS (V410420)	SL13B-0224MCS (V410420)
s4						
s5	R134-136	x	x	4.7 (HV753471)	4.7 (HV753471)	4.7 (HV753471)
s6	C38-40	x	x	470P (VF46690)	470P (VF46690)	470P (VF46690)
s7	TE1	V591210	V591210	V591210	V591210	V591200
s8	TE151	V591230	V591230	V591230	V591230	V591220
s9	C155-156	x	x	0.01 (V71670)	0.01 (V71670)	0.01 (V71670)
s10	J202-203	0	x	x	x	x
s11	J201	0	0	x	0	0
s12	Q201-203	x	x	2SJ361(J/K) (VM51080)	x	x
s13	R202-208	x	x	100 (HF45510)	x	x
s14	R201	x	x	10K (HF45710)	x	x
s15	D202	x	x	1SS133 (V063160)	x	x
s16	C205	x	x	10/25 (UU14710)	x	x
s17	C212	x	x	10/100 (UR82710)	x	x
s18	Q202	x	x	2SA611(Y) (E10262)	x	x
s19	D203	x	x	MTZJ-11B (V43990)	x	x
s20	C213	x	x	10/50 (UR59710)	x	x
s21	D208	x	x	1N4002S (V30770)	x	x

x: NOT USED
O:USED / APPLICABLE

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★ Schematic diagram is subject to change without notice.

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■SCHEMATIC DIAGRAM (POWER)

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
☑	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
ⓘ	MICA CAPACITOR
⊛	POLYPROPYLENE FILM CAPACITOR
⊕	SEMICONDUCTIVE CERAMIC CAPACITOR
⊜	POLYPHENYLENE SULFIDE FILM CAPACITOR

NOTICE [model]
(J)····· JAPANESE
(U)····· U.S.A
(C)····· CANADIAN
(R)····· GENERAL
(A)····· AUSTRALIAN
(B)····· BRITISH
(G)····· EUROPEAN
(T)····· CHINA
(L)····· SINGAPORE

POWER RELAY

REGULATOR

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&11	CN01-051	155133 H55176 H55104
&12		
&13		
&14		
&15		
&16		

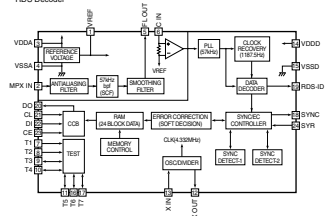
VOLTAGE SELECTOR

240V	1-2/5-6
220V	2-3/6-7
110V	3-4/7-8
120V	4-5/8-1

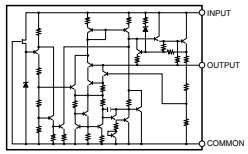
		J V623400	U-C V623410	R-T V623420	A V623430	B V623440	G V623450	L V623460
s1	PJ553	V-69630	V-69630	V-69630	V-69630	V-69630	V-69630	V-69630
s2	RR61-562	x	56k HF-45756	x	56k HF-45756	x	x	x
s3	RR77-578	x	470 HF-45547	x	470 HF-45547	x	x	x
s4	CR67-568	x	470V/100 UP65247	x	470V/100 UP65247	x	x	x
s5	DB51	x	V063160	x	V063160	x	x	x
s6	JK851-852	x	V-72680	x	V-72680	x	x	x
s7	TJ01	XZ227	XZ228	XZ229	XZ230	XZ231	XZ231	XZ231
s8	TE301	V054310	V054310	V586740	VY91500	V054330	V054340	V054340
s9	JJ01	0	0	0	0	0	x	x
s10	CB302-303	x	x	x	x	x	VP20650	VP20660
s11	FJ01	x	x	x	x	x	T2.5A/250V V154250	T2.5A/250V V154260
s12	RJ23	x	x	MH02625	x	x	x	x
s13	RJ21	x	x	MH04625	x	x	x	x
s14	RJ25	x	x	MH03625	x	x	x	x
s15	RJ22	x	x	MH09625	x	x	x	x
s16	RJ24	x	x	MH06625	x	x	x	x
s17	RJ26	x	x	MH01625	x	x	x	x
s18	SW321	x	x	VA96180	x	x	x	x
s19	CB321-322	x	x	VP20650	x	x	x	x
s20	FJ21	x	x	T4AL250V K80007S	x	x	x	x
s21	FJ02	8A125V V582330	8A125V V582330	8A125V V582330	T4AL250V K80007S	T4AL250V K80007S	T4AL250V K80007S	T4AL250V K80007S
s22	RJ02	x	L/292-2W H330922	x	x	x	x	x
s23	IC1	x	x	x	x	LC72722 XY53440	LC72722 XY53460	x
s24	XL1	x	x	x	x	4.332MHz Y393090	4.332MHz Y393090	x
s25	C15-17	x	x	x	x	27PCH V476110	27PCH V476110	x
s26	C11-12	x	x	x	x	33CP VG27850	33CP VG27860	x
s27	C13	x	x	x	x	56CP VG27880	56CP VG27880	x
s28	C18	x	x	x	x	0.047/16 V-69900	0.047/16 V-69900	x
s29	C14-15-19	x	x	x	x	47/16 UU13747	47/16 UU13747	x
s30	RJ2	x	x	x	x	100 HF-45510	100 HF-45510	x
s31	RJ5-16	x	x	x	x	470 HF-45547	470 HF-45547	x
s32	RJ3-14	x	x	x	x	10K HF-45710	10K HF-45710	x
s33	RJ1	x	x	x	x	22K HF-45722	22K HF-45722	x
s34	LJ1	x	x	x	x	220uH V154610	220uH V154610	x
s35	SW551	x	x	SS029- P0020BJG-P46 YY81170	x	x	x	x
s36	CB01-303	x	x	0.01 V171670	x	x	x	x
s37	CJ02	0.01/100 VL86450	0.01/100 VL86450	x	0.01/100 VL86450	0.01/100 VL86450	0.01/100 VL86450	0.01/100 VL86450
s38	QJ2	x	x	x	x	C1740SIR/S IC17402	C1740SIR/S IC17402	x
s39	RJ7	x	x	x	x	3.3k HF-45633	3.3k HF-45633	x

x: NOT USED
O: USED / APPLICABLE

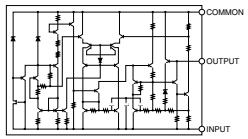
IC1: LC72722
RDS Decoder



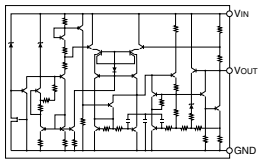
IC351: NJM7812FA
IC353: NJM7805FA
Voltage Regulator



IC352: NJM79M12FA
IC355: NJM79M05FA
Voltage Regulator



IC354: NJM78M05FA
Voltage Regulator



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PARTS LIST

■ ELECTRICAL PARTS

■ **WARNING**

Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.

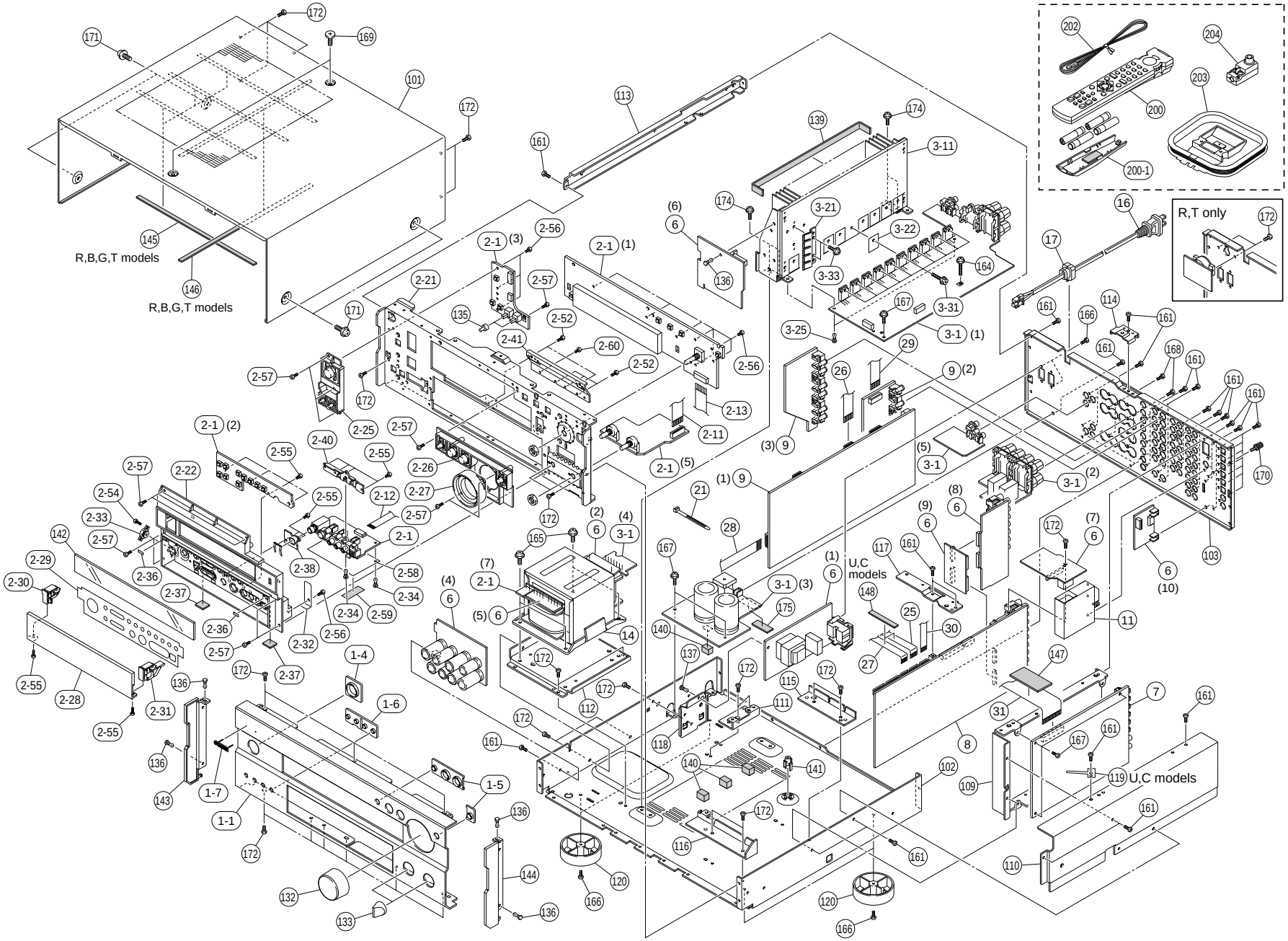
- Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS List. For the parts No. of the carbon resistors, refer to last page.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

C.A.EL.CHP	: CHIP ALUMI.ELECTROLYTIC CAP
C.CE	: CERAMIC CAP
C.CE.ARRAY	: CERAMIC CAP ARRAY
C.CE.CHP	: CHIP CERAMIC CAP
C.CE.ML	: MULTILAYER CERAMIC CAP
C.CE.M.CHP	: CHIP MULTILAYER CERAMIC CAP
C.CE.SAFTY	: RECOGNIZED CERAMIC CAP
C.CE.TUBLR	: CERAMIC TUBULAR CAP
C.CE.SMI	: SEMI CONDUCTIVE CERAMIC CAP
C.EL	: ELECTROLYTIC CAP
C.MICA	: MICA CAP
C.ML.FLM	: MULTILAYER FILM CAP
C.MP	: METALLIZED PAPER CAP
C.MYLAR	: MYLAR FILM CAP
C.MYLAR.ML	: MULTILAYER MYLAR FILM CAP
C.PAPER	: PAPER CAPACITOR
C.PLS	: POLYSTYRENE FILM CAP
C.POL	: POLYESTER FILM CAP
C.POLY	: POLYETHYLENE FILM CAP
C.PP	: POLYPROPYLENE FILM CAP
C.TNTL	: TANTALUM CAP
C.TNTL.CHP	: CHIP TANTALUM CAP
C.TRIM	: TRIMMER CAP
CN	: CONNECTOR
CN.BS.PIN	: CONNECTOR,BASE PIN
CN.CANNON	: CONNECTOR,CANNON
CN.DIN	: CONNECTOR,DIN
CN.FLAT	: CONNECTOR,FLAT CABLE
CN.POST	: CONNECTOR,BASE POST
COIL.MX.AM	: COIL,AM MIX
COIL.AT.FM	: COIL,FM ANTENNA
COIL.DT.FM	: COIL,FM DETECT
COIL.MX.FM	: COIL,FM MIX
COIL,OUTPT	: OUTPUT COIL
DIOD.ARRAY	: DIODE ARRAY
DIODE.BRG	: DIODE BRIDGE
DIODE.CHP	: CHIP DIODE
DIODE.VAR	: VARACTOR DIODE
DIOD.Z.CHP	: CHIP ZENER DIODE
DIODE.ZENR	: ZENER DIODE
DSCR.CE	: CERAMIC DISCRIMINATOR
FER.BEAD	: FERRITE BEADS
FER.CORE	: FERRITE CORE
FET.CHP	: CHIP FET
FL.DSPLY	: FLUORESCENT DISPLAY
FLTR.CE	: CERAMIC FILTER
FLTR.COMB	: COMB FILTER MODULE
FLTR.LC.RF	: LC FILTER,EMI
GND.MTL	: GROUND PLATE
GND.TERM	: GROUND TERMINAL
HOLDER.FUS	: FUSE HOLDER
IC.PRTCT	: IC PROTECTOR
JUMPER.CN	: JUMPER CONNECTOR
JUMPER.TST	: JUMPER,TEST POINT
L.DTCT	: LIGHT DETECTING MODULE
L.EMIT	: LIGHT EMITTING MODULE
LED.DSPLY	: LED DISPLAY
LED.INFRD	: LED,INFRARED
MODUL.RF	: MODULATOR,RF
PHOT.CPL	: PHOTO COUPLER
PHOT.INTR	: PHOTO INTERRUPTER
PHOT.RFLCT	: PHOTO REFLECTOR
PIN.TEST	: PIN,TEST POINT
PLST.RIVET	: PLASTIC RIVET
R.ARRAY	: RESISTOR ARRAY
R.CAR.	: CARBON RESISTOR
R.CAR.CHP	: CHIPRESISTOR
R.CAR.FP	: FLAME PROOF CARBON RESISTOR
R.FUS	: FUSABLE RESISTOR
R.MTL.CHP	: CHIP METAL FILM RESISTOR
R.MTL.FLM	: METAL FILM RESISTOR
R.MTL.OXD	: METAL OXIDE FILM RESISTOR
R.MTL.PLAT	: METAL PLATE RESISTOR
RSNR.CE	: CERAMIC RESONATOR
RSNR.CRYS	: CRYSTAL RESONATOR
R.TW.CEM	: TWIN CEMENT FIXED RESISTOR
R.WW	: WIRE WOUND RESISTOR
SCR.BND.HD	: BIND HEAD B-TITE SCREW
SCR.BW.HD	: BW HEAD TAPPING SCREW
SCR.CUP	: CUP TITE SCREW
SCR.TERM	: SCREW TERMINAL
SCR.TR	: SCREW,TRANSISTOR
SUPRT.PCB	: SUPPORT,P.C.B.
SURG.PRTCT	: SURGE PROTECTOR
SW.TACT	: TACT SWITCH
SW.LEAF	: LEAF SWITCH
SW.LEVER	: LEVER SWITCH
SW.MICRO	: MICRO SWITCH
SW.PUSH	: PUSH SWITCH
SW.RT.ENC	: ROTARY ENCODER
SW.RT.MTR	: ROTARY SWITCH WITH MOTOR
SW.RT	: ROTARY SWITCH
SW.SLIDE	: SLIDE SWITCH
TERM.SP	: SPEAKER TERMINAL
TERM.WRAP	: WRAPPING TERMINAL
THRMST.CHP	: CHIP THERMISTOR
TR.CHP	: CHIP TRANSISTOR
TR.DGT	: DIGITAL TRANSISTOR
TR.DGT.CHP	: CHIP DIGITAL TRANSISTOR
TRANS	: TRANSFORMER
TRANS.PULS	: PULSE TRANSFORMER
TRANS.PWR	: POWER TRANSFORMER ASS'Y
TUNER.AM	: TUNER PACK,AM
TUNER.FM	: TUNER PACK,FM
TUNER.PK	: FRONT-ENDTUNER PACK
VR	: ROTARY POTENTIOMETER
VR.MTR	: POTENTIOMETER WITH MOTOR
VR.SW	: POTENTIOMETER WITH ROTARY SW
VR.SLIDE	: SLIDE POTENTIOMETER
VR.TRIM	: TRIMMER POTENTIOMETER

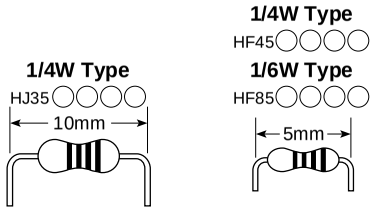
Note) Those parts marked with "#" are not included in the P.C.B. ass'y.

■ EXPLODED VIEW



Parts List for Carbon Resistors

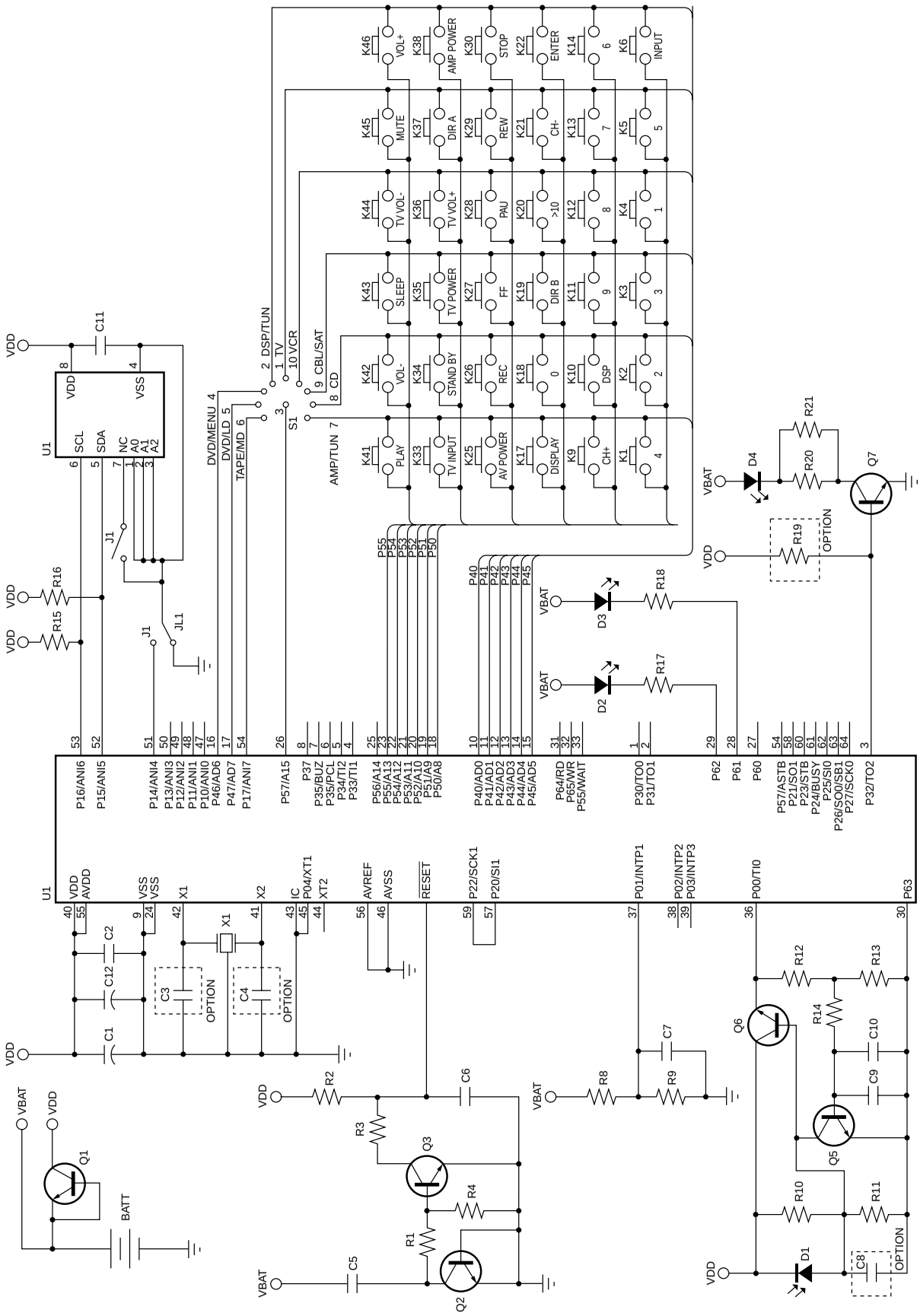
Value	**1/4W** Type Part No.	**1/6W** Type Part No.	Value	**1/4W** Type Part No.	**1/6W** Type Part No.
1.0	HJ35 3100	HF85 3100	10 k	HF45 7100	HF45 7100
1.8	HJ35 3180	❊	11 k	HF45 7110	HF45 7110
2.2	HJ35 3220	HF85 3220	12 k	HJ35 7120	HF85 7120
3.3	HJ35 3330	HF85 3330	13 k	HF45 7130	HF45 7130
4.7	HJ35 3470	HF85 3470	15 k	HF45 7150	HF45 7150
5.6	HJ35 3560	HF85 3560	18 k	HF45 7180	HF45 7180
10	HF45 4100	HF45 4100	22 k	HF45 7220	HF45 7220
15	HJ35 4150	HF85 4150	24 k	HF45 7240	HF45 7240
22	HF45 4220	HF45 4220	27 k	HJ35 7270	HF85 7270
27	HJ35 4270	HF85 4270	30 k	HF45 7300	HF45 7300
33	HF45 4330	HF45 4330	33 k	HF45 7330	HF45 7330
39	HJ35 4470	HF85 4390	36 k	HF45 7360	HF45 7360
47	HF45 4470	HF45 4470	39 k	HF45 7390	HF45 7390
56	HF45 4560	HF45 4560	47 k	HF45 7470	HF45 7470
68	HF45 4680	HF45 4680	51 k	HF45 7510	HF45 7510
75	HF45 4750	HF45 4750	56 k	HF45 7560	HF45 7560
82	HF45 4820	HF45 4820	62 k	HF45 7620	HF45 7620
91	HF45 4910	HF45 4910	68 k	HF45 7680	HF45 7680
100	HF45 5100	HF45 5100	82 k	HF45 7820	HF45 7820
110	HJ35 5110	HF85 5110	91 k	HF45 7910	HF45 7910
120	HF45 5120	HF45 5120	100 k	HF45 8100	HF45 8100
150	HF45 5150	HF45 5150	110 k	HF45 8110	HF45 8110
160	HJ35 5160	❊	120 k	HF45 8120	HF45 8120
180	HF45 5180	HF45 5180	150 k	HF45 8150	HF45 8150
200	HF45 5200	HF45 5200	180 k	HF45 8180	HF45 8180
220	HF45 5220	HF45 5220	220 k	HJ35 8220	HF85 8220
270	HF45 5270	HF45 5270	270 k	HF45 8270	HF45 8270
330	HF45 5330	HF45 5330	300 k	HF45 8300	HF45 8300
390	HF45 5390	HF45 5390	330 k	HF45 8330	HF45 8330
430	HF45 5430	HF45 5430	390 k	HJ35 8390	HF85 8390
470	HF45 5470	HF45 5470	470 k	HF45 8470	HF45 8470
510	HF45 5510	HF45 5510	560 k	HJ35 8560	HF85 8560
560	HF45 5560	HF45 5560	680 k	HJ35 8680	HF85 8680
680	HF45 5680	HF45 5680	820 k	HJ35 8820	HF85 8820
820	HF45 5820	HF45 5820	1.0 M	HF45 9100	HF45 9100
910	HF45 5910	HF45 5910	1.2 M	HJ35 9120	❊
1.0 k	HF45 6100	HF45 6100	1.5 M	HJ35 9150	HF85 9150
1.2 k	HF45 6120	HF45 6120	1.8 M	HJ35 9180	HF85 9180
1.5 k	HF45 6150	HF45 6150	2.2 M	HJ35 9220	HF85 9220
1.8 k	HF45 6180	HF45 6180	3.3 M	HJ35 9330	HF85 9330
2.0 k	HJ35 6200	HF85 6200	3.9 M	HJ35 9390	❊
2.2 k	HF45 6220	HF45 6220	4.7 M	HJ35 9470	HF85 9470
2.4 k	HJ35 6240	HF85 6240			
2.7 k	HF45 6270	HF45 6270			
3.0 k	HF45 6300	HF45 6300			
3.3 k	HF45 6330	HF45 6330			
3.6 k	HJ35 6360	HF85 6360			
3.9 k	HF45 6390	HF45 6390			
4.7 k	HF45 6470	HF45 6470			
5.1 k	HF45 6510	HF45 6510			
5.6 k	HF45 6560	HF45 6560			
6.8 k	HF45 6680	HF45 6680			
8.2 k	HF45 6820	HF45 6820			
9.1 k	HF45 6910	HF45 6910			

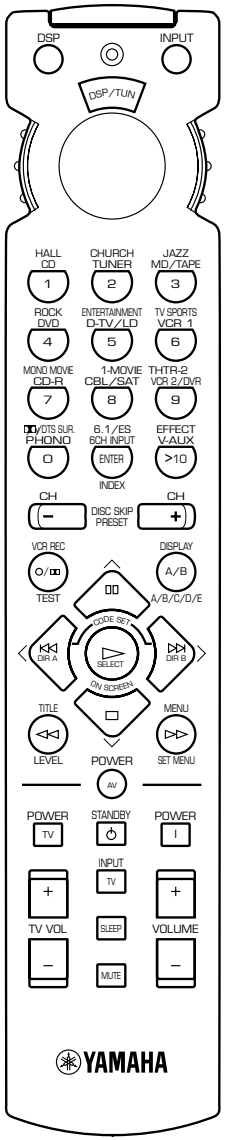


❊ : Not available

■ REMOTE CONTROL TRANSMITTER

● SCHEMATIC DIAGRAM





Function Keychart

NO		TV	VCR	CABLE/SAT	CD	AMP/TUNER	TAPE/MD	DVD MENU	DVD/LD	DSP/TUNER	
1	DSP	Shift DSP PROGRAM									
2	INPUT	Shift INPUT SELECT									0023
3	1	CH1	CH1	CH1	1	CD	1	1	1	HALL	P1
4	2	CH2	CH2	CH2	2	TUNER	2	2	2	CHURCH	P2
5	3	CH3	CH3	CH3	3	MD/TAPE	3	3	3	JAZZ	P3
6	4	CH4	CH4	CH4	4	DVD	4	4	4	ROCK	P4
7	5	CH5	CH5	CH5	5	D-TV/LD	5	5	5	ENTERTAINMENT	P5
8	6	CH6	CH6	CH6	6	VCR1	6	6	6	TV SPORTS	P6
9	7	CH7	CH7	CH7	7	CD-R	7	7	7	MONO MOVIE	P7
10	8	CH8	CH8	CH8	8	CBL/SAT	8	8	8	MOVIE THTR1	P8
11	9	CH9	CH9	CH9	9	VCR2/DVR	9	9	9	MOVIE THTR2	-
12	0	CH0	CH0	CH0	0	PHONO	0	0	0	DD/dfs SUR	-
13	ENTER	CH Enter/Recall	CH Enter/Recall	CH Enter	INDEX	6CH INPUT	-	INDEX	INDEX	6.1/ES	-
14	>10	_/_ _	_/_ _	_/_ _	+10	V AUX	+10	+10	+10	EFFECT	-
15	CH+	TV CH+	VCR CH+	CBL/SAT CH+	DISC+	PRESET+	-	DISC+		PRESET+	<-
16	CH-	TV CH-	VCR CH-	CBL/SAT CH-	DISC-	PRESET-	-	DISC-		PRESET-	<-
17	REC	VCR REC		-	-	TEST	REC/PAUSE	RETURN	-	TEST	<-
18	DISPLAY	DISPLAY	DISPLAY	DISPLAY/GUIDE	DISPLAY	A/B/C/D/E	DISPLAY/A-B	DISPLAY	DISPLAY	A/B/C/D/E	<-
19	PAUSE	VCR PAUSE		Up	PAUSE	Up	PAUSE	Up	PAUSE	Up	<-
20	SKIP-	-	-	Left	SKIP-	Left	SKIP-/DIR A	Left	SKIP/CHAP-	Left	<-
21	PLAY	VCR PLAY		Menu Select	PLAY	ON SCREEN	PLAY	Select	PLAY	ON SCREEN	<-
22	SKIP+	-	-	Right	SKIP+	Right	SKIP+/DIR B	Right	SKIP/CHAP+	Right	<-
23	STOP	VCR STOP		Down	STOP	Down	STOP	Down	STOP	Down	<-
24	REW	VCR REW		RECALL	REW	TIME/LEVEL	REW	TITLE	REW	TIME/LEVEL	<-
25	FF	VCR FF		MENU	FF	SET MENU	FF	MENU	FF	SET MENU	<-
26	AV POWER	VCR POWER		CBL/SAT POWER	CD POWER	-	TAPE/MD POWER	DVD/LD POWER		-	<-
27	TV POWER	TV POWER									
28	STANDBY	STANDBY(OFF)									
29	POWER	AMP POWER									
30	TV VOL+	TV VOL+									
31	TV VOL-	TV VOL-									
32	TV INPUT	TV INPUT									
33	SLEEP	TV SLEEP	SLEEP								
34	MUTE	TV MUTE	MUTE								
35	VOL+	VOL+									
36	VOL-	VOL-									

	Library	TV	VCR	CABLE/SAT SAT/SAT	CD	TUNER 0023	TAPE MD	(DVD)	DVD/LD LD	TUNER 0023
	Change Device	x	x	AUX	x	x	x	AUX	x	x
	Default	0101	0002	0006	0005(Yamaha)	0003(AMP)	0004(Yamaha)	0008(Yamaha)		0013(DSP)